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Philips to take over Four Phase in UK

THE UK subsidiary of Four Phase Systems is to be acquired by Philips Data Systems. Established 2½ years ago at Twyford, Berkshire, the Four Phase subsidiary has been selling its System IV range of distributed data entry systems which are built around the company's own 24-bit processor (CW, January 20, 1977).

Philips has marketed Four Phase products on the Continent since 1973. The main product started out as a key-to-disc system, which Philips sold as the X1100 line, but has steadily been enhanced with more comprehensive software and is now a complete decentralised processing and communications system. Philips calls it the P7000.

The acquisition of the UK Four Phase company will finally achieve a long-time aim for Philips. It introduced the X1150 model in the UK through its MEL subsidiary four years ago (CW, June 19, 1975), but closed down the marketing operation some two years later because well-established companies like Redifon and CMC, plus ICL with its Key-Edits, had virtually saturated the UK key-to-disc market.

The evolution of the product, plus Philips' much stronger emphasis on terminal and communications systems, makes this an appropriate time for the company to re-enter the market.

The agreement only involves the UK subsidiary and does not affect the status of the parent company, Four Phase Systems Inc of Cupertino, California.

● Philips is also proposing to buy the 39% of the shares of Pye Holdings which it does not already own, making Pye of Cambridge a 100% Philips subsidiary.

NEWS IN BRIEF

Times talks break down

THE spirit of peace generated at The Times by Lord Thomson's intervention, evaporated in acrimony last week as unions and management disagreed vehemently over how much is to be settled before staff are reinstated. Union chiefs are to meet executives of the parent Thomson Organisation this week to try to reconcile the deadlock.

Proposals put forward by management last week were rejected by the unions as being completely different from what had been agreed at earlier meetings.

Hatchet buried

THE hatchet has been buried between the new UK Apple master distributor, Data Efficiency, and Personal Computers, following a meeting at the headquarters of Eurapple, the European marketing company for Apple Computers, in Cupertino, California. The two companies are now negotiating Personal Computers' place in Data Efficiency's distribution network.

Same route

OBSERVERS are predicting that, to accompany IBM's anticipated H-series machines, its database management system IMS will take the same route as MVS with the emergence of an SE version offering both added facilities and performance-oriented microcode.

Chip for the top

HIGHEST new entry in last week's Top Forty was "Don't Like Mondays" by Irish group the Boomtown Rats, currently one of the hottest properties on the pop scene. The song opens with the words "Silicon chip inside her head".

Plessey kills off its holograph memory

AFTER several years' work the Microsystems Division of Plessey has killed its holographic memory development project to concentrate on an alternative form of laser based mass memory, photochromatic storage, which is already being actively developed by IBM (CW, August 10, 1978).

But the development of the holographic memory may not be at an end, because the man who headed the project at Plessey, Peter Waterworth, has now left the company and is negotiating a deal with Plessey that could enable him to carry on the work independently.

Waterworth was not prepared to comment on his talks with Plessey, although he pointed out that several other parties were interested in exploiting the system and were also in discussion with the company.

The Plessey holographic system uses what the company has described as a "revolutionary" new material called Optape, the optical equivalent of magnetic tape but capable of storing some 60 million bits per square inch at a small fraction of the cost per bit. But the data rate is only marginally faster than with magnetic tape.

Development had got to the stage where a glossy brochure was published by Plessey showing what looked like a complete marketable system.

The brochure pointed out that its system competed directly with the IBM 3850 mass storage system which uses hundreds of magnetic tape cartridges.

Plessey was not prepared to discuss its work on photochromatic memory although IBM has already published a lot of information on its own work in this area.

Patented as the "frequency selective optical data storage system," IBM's technique involves a laser being directed at an element of photo-reactive material one micrometre in diameter and set to a specific frequency.

The laser then changes the chemical nature of the molecules in the material that are receptive to that frequency so that they can no longer absorb light.

Micro lab opens

RESEARCH into the fabrication of microelectronic devices in the UK received a push when former Education Secretary Shirley Williams opened a new laboratory at the Science Research Council's Rutherford Laboratory.

This has been equipped with a £320,000 electron-beam Microfabricator from Cambridge Instruments, which is capable of fabricating circuits of far higher complexity than currently used in microelectronics manufacture. The laboratory will collaborate with four other UK universities in its work.

TA hits the takeover trail

● **From front page**

such as Centronics, Teletype and V24 on a single board, which TA will offer OEM in the UK as well as with its products.

TA also has worldwide rights to a very fast (2,000 to 4,000 chps) non-impact thermal printing mechanism developed by a small US company, SCI Systems (CW, September 15, 1977).

Used with Prestel or any online system, this could lead to significant reductions in line costs. It uses electro-sensitive paper, also of interest to Triumph-Adler since the company has a computer supplies plant in Scotland.

At the bottom end of its product line, TA also has a new office computer, the TA 1100. Based on the Intel 8080, it comes with display, double density floppy disc drives and 180 chps printer, and will be launched in the UK shortly at £8,500 including one suite of application programs.

One of the most attractive new products to be launched at Hanover this year was the Bitsy word processor, which is marketed by Diehl Datensysteme but developed by Triumph-Adler.

● Volkswagen is the third company to take control of the Triumph-Adler group, after Grundig and Litton Industries of the US, which bought a controlling interest in 1969.

In 1978 the Diehl defence systems, instruments and office equipment company became a shareholder in the group holding company Triumph-Werke AG, and its office systems subsidiary Diehl Datensysteme became part of the group.

By this time it was becoming clear that Triumph-Adler was looking for a major capital injection to bring its new products to market whereas problems in other parts of the Litton Industries group meant that Litton was more interested in a short-term high return from its investment.

After making overtures to Nixdorf, which were rejected because Heinz Nixdorf wanted to retain control of the company he founded, Volkswagen identified Triumph-Adler as a broadly based, well-established company with a product line promising considerable potential if it were to receive sufficient capital to finance development and growth.

As a result, agreement was reached that Volkswagen would take a 55% stake in the expanded capital of Triumph Werke Nürnberg, with Diehl having 25%, Litton Industries 19% and small shareholders the balance.

Triumph Werke in turn has 92% of Adler, with banks and small shareholders holding the remainder. It has also taken over Litton's Royal Imperial marketing organisation in the US, and this brings combined group sales up to DM 1,100 million, £225 million, in 1978.

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Amdahl-Olivetti marketing deal

A MARKETING agreement between Amdahl and Olivetti is in sight, despite earlier suggestions from Amdahl that talks had terminated (CWI, June 28).

Amdahl deputy chairman Gene White now says that the two companies expect to reach a major co-operative agreement within three months.

He was not available for comment, but the expectation is that Olivetti will market Amdahl mainframes in Italy and some other southern European countries, possibly through joint Amdahl-Olivetti companies.

"Olivetti is also strong in South America, which would be a difficult market for Amdahl to enter on its own," commented Aharon Orlansky, analyst with stockbrokers Dean Witter Reynolds.

"Amdahl needs to expand its worldwide marketing, but establishing sales and service networks in many more countries would stretch its resources very thinly," he told Computer Weekly. He noted that the highly qualified salesmen who sell Olivetti's IBM-compatible terminals should also be able to handle large computers.

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Joseph quells ICL fears

● **From front page**

buy a few more shares when Plessey sold its stake.

The Inmos microelectronics, Insac software and Nexos office systems ventures survive unscathed and the NEB will continue its involvement with member companies of these ventures including SPL, SDL, CAP, Systime and Logica, and also with Case and DRI.

However the £100 million the NEB is required to raise by sale of assets this year is only a first step and subsequent sales are likely to be required.

The NEB will be able to invest some of the money it raises by sale of assets in new high technology ventures, but it will be expected to float Inmos, Insac and Nexos as public companies once they are viable.

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Briefing

H-P move into micros likely

US REPORTS are hinting strongly at imminent moves into the microcomputer field by Hewlett-Packard. A September launch date is being quoted for a new multi-user, universal microprocessor development system, and later in the year, the company's rumoured personal computer is expected.

The development system, code-named Pisces, will be capable of either stand-alone operation, or direct linking to an HP 3000.

● A 32-bit version of Hewlett-Packard's 1000-Series of scientific computers is expected from the HP Data Systems Division by the end of this year. The standard, 16-bit, HP 1000-Series processor is the same as used in the venerable HP 2000-Series machines.

US ambassador

THOMAS WATSON Junior former chairman of IBM, has been chosen by President Carter as the next US ambassador in Moscow. Watson's brother, Arthur "Dick" Watson, was US ambassador in Paris in the early 1970s. Thomas Watson's appointment is currently being ratified by the US Senate.

Freedom flag

AN attempt to force the government to make a statement on its attitude to Freedom of Information failed last week when it did not oppose an Information Bill put forward by former Labour minister Michael Meacher. The Bill was presented under the Ten Minute Rule as a "flag-waving exercise" and has no chance of being passed, owing to lack of debating time. The issue will be raised again when the government presents its promised reforms of the Official Secrets Act. The Law Society has declared itself in favour of Freedom of Information.

Xerox switch

XEROX has transferred responsibility for word processors and fascimile equipment back to Dallas, only months after moving it to El Segundo, California in the setting up of Xerox Business Systems (CW, November 16 1978). A new Office Products Division has been established, headed by Donald Massaro, former head of Shugart Associates.

Talisman ahead

TALISMAN, the Stock Exchange's computer based settlement system, is now handling 75% of bargains, two months ahead of the time originally planned for this level of workload. Talisman went live in April.

Users vote

VOTING is taking place among members of the Elliott Computer Users' Association on whether its name should be changed to the GEC Computer Users' Association. Results of a ballot are expected by the end of August.

BCS names its 1980 president

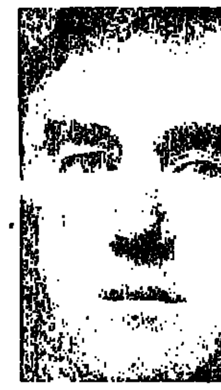
THE applications of computers to nuclear power and banking are the background of the next deputy president and subsequent president of the British Computer Society. Frank Hooper, who oversees computer R&D at Barclays Bank, becomes deputy president of the BCS in October 1979 and president a year later.

Hooper has been a BCS member since 1961 and has served on a wide range of Society committees, including the Recommended DP Methods Specialist Group, the Technical and Education Boards, and the Professional Conduct Committee.

He recently chaired the task force set up to tackle low growth in membership (CW, July 19).

The Society's ultimate objective, Hooper said, "that all properly qualified people in data processing are Members and Fellows of the Society, is a proper target to aim for — and the only way for the Society to ensure that the future of computing is not clouded by unprofessionalism and bad workmanship."

Before joining Barclays, Hooper worked for two years with Control Data and before that was with the Atomic Energy Authority and the CEGB.


Hooper

Hopeful signs of The Times

AGREEMENT has at last been reached at The Times between management and national officers of the main printing unions over terms for restarting publication. The formula has still to be agreed by the union national committees and the members, but after months of stop-go negotiations it now seems probable that The Times and its sister papers will reappear in the autumn.

Details of the formula are being kept secret until the union committees have been consulted but they appear not to be substantially different from those put forward by management two weeks ago and rejected outright by the unions (CW, July 26).

Amdahl leads in varsity race

A CONTRACT for a large-scale mainframe to provide a time sharing service to departments within Leeds University is to be placed this week and looks like going to Amdahl which has bid a 470V/6, the machine that almost matches the IBM 3033 in performance.

If Amdahl gets the contract it will be the company's first university installation in the UK.

The 470V/6 will run under VM with the Conversational Monitor System.

The machine chosen will replace an ICL 1906A, but ICL did not bid for the contract because it could not offer a sufficiently powerful processor early last year when the contract went out to tender. The closing date for tenders was September 15 last year, and ICL was led to understand that a decision would be made by Christmas, 1978.

If ICL had been aware that the decision was to be delayed until now it could have bid a 2982, the machine it announced two months ago (CW, May 31). A dual processor 2982 matches the power of a 3033.

ICL was not prepared to comment on its feelings about missing out at Leeds, although a spokesman for the Universities' Computer Board said that the whole matter was "rather sensitive".

The short list of bidders for the Leeds contract consisted of Control Data, Amdahl and several third party lessors offering IBM configurations.

● By way of a consolation for ICL, the government's announcement about the future of the British National Oil Corp last week means that BNOC will remain sufficiently active to continue with its plans to develop an in-house system based on a large scale ICL mainframe (CW, June 21).

A BNOC spokesman said that a machine no smaller than a 2972 would still be needed, and that its workload would consist of a mixture of general accounting, database management and technical applications like structural analysis. The ICL machine will be installed at BNOC headquarters in Glasgow next year.

EEC £15m support for computer industry

THE EEC Commission's four-year plan to support the European computer industry finally looks like going ahead, but little is left of the original proposals and the 103 million Units of Account has been whittled away to 25 million, £15 million (CW, October 28, 1976).

The heavily trimmed program approved by the EEC foreign ministers has two elements. The first, for which 10 million UA, £6 million, has been allocated, covers standardisation, harmonisation of public procurement procedures, promotion of research and development collaborations, and studies into the impact of computers on society.

The second sets aside 15 million UA, £9 million, for specific projects to be funded by the Commission. The projects are to be chosen in October, but front runners are the development of computer systems for use in ports — all EEC countries apart from Luxembourg are maritime nations — application of computers to hydrology, and projects associated with shipping.

Gone altogether are support for joint product development projects in the small systems and terminals manufacturing area.

Philips to set up US semiconductor lab

A NEW semiconductor research laboratory is to be set up in Sunnyvale, California, by the Philips Group. Acting as a complement to the company's existing laboratories in Eindhoven, Holland, the main beneficiary of its work is likely to be Signetics, the US semiconductor company bought by Philips four years ago. Other Philips companies, including Mullard and Pye in the UK, should also benefit from the research.

US insurers hit by leasing controversy

THE problems which have hit Lloyd's of London as a result of the "J" policies it wrote guaranteeing the residual values of computers returned off lease, have now spread to US insurance companies. Itel has issued a law-suit against Americas Insurance of New Orleans over non-payment of an insurance claim.

Meanwhile the drastic financial restructuring of Itel continues, with agreements for the sale of two more divisions, the ones which lease aircraft and ships. The prices are believed to be $68 million and $100 million respectively.

If the deal goes through, Itel will be left with three arms to its business: computer sales and leasing, and leasing of rail cars, and of containers. There has also been considerable retrenchment in the rail car business with the cancellation of two contracts for new rolling stock.

Itel's stock, which had been sliding steadily on Wall Street, went up half a point on Friday, leading to speculation that there may be a buyer in the wings for what is left of the company.

Itel's law-suit is against Americas Insurance, number one US insurance broker Marsh and McLennan and sundry others, for a total of $80 million, much of it punitive damages.

It involves a large IBM 370 which was returned off lease by the State of Georgia last December, one year after installation. Itel's agents, Guarantee Appraisal, valued it at $2,375,000 but it only raised $1.53 million; Itel claimed under the insurance policy for the difference, but got nothing.

French schools micro project gets under way

THE French government's plan for a microcomputer in every school is under way and the first contracts for a total of 416 machines, have gone to Logabax and L'Occitane d'Electronique. The ultimate requirement will be for 10,000 microcomputers (CW, December 14, 1978), and the two companies and any others interested will be invited to bid for a similar sized contract in a few months.

Logabax will be supplying its Zilog Z80-based LX 500, with two mini-floppy drives, 32K-bytes of store and up to 10 workstations plus a printer. Some schools may only get a workstation linked to an LX500 in another school.

L'Occitane d'Electronique was founded in 1976 in Toulouse to specialise in the video games market. It builds its X1 microcomputer around the Motorola 6800 and the system includes double-density mini-floppies, one VDU and optional printer.

The LX500 will have Logabax' own Basic, and the X1 Basic from Microsoft Inc. There is no connection with CAP-Microsoft of the UK.

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INFATUATION—AND DISILLUSIONMENT

IT is often love at first sight when schoolchildren are introduced to micros, but this infatuation can lead to disillusionment. Malcolm Peltu reports on the conference of micro and mini users in secondary education, Muse, where this and other topics were discussed. Page 4

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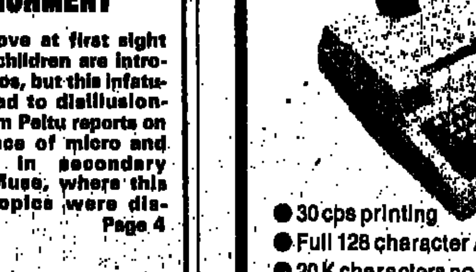
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COMPUTERVIEW

IDPM stands at the crossroads

THE Institute of Data Processing Management is tantalisingly close to taking a huge step forward in its quest for full recognition as an authoritative, professional and representative computer industry organisation.

At its annual meeting last week, an appeal was made for 12 companies to put up £1,000 each to pay for a full-time secretary-general (see page 9).

The response to the appeal will be significant for the future of the Institute. A short recap of the Institute's history will show why.

The Institute was formed on April 1 last year from the merging of the Data Processing Management Association and the Institute of Data Processing, which had a joint and static membership figure of around 4,000. For comparison purposes, the British Computer Society has 23,000 members.

The Data Processing Management Association had evolved into a kind of club, which gave it rather a beery image even though the meetings were serious enough: they provided a forum for the exchange of ideas and experiences. Members got some sponsorship on courses but that was the nearest the association came to formal examinations and qualifications.

The Institute of Data Processing, on the other hand, had a more dignified image, not only because of its name but also because it offered examinations. Its examinations became recognised by the British Computer Society and by the Civil Service.

Given the difference in image between the two bodies it was little surprise that some Institute members were worried that the merger would erode their professional status and lower the standards of the examinations.

However, the merger has been a great success. Somehow the new Institute of Data Processing Management managed to keep some of the beery, working men's club image of the association and at the same time, the more dignified outlook of the Institute.

This success can be measured by the fact that membership has leapt by 35% to 5,400 in little over a year. The Institute has set in motion studies of the impact of the microcomputer on traditional data processing, surveyed its members on their thoughts on the proposed data protection laws, set up a surgery for users planning to get a microcomputer, and organised essay competitions and the Data Processing Manager of the Year award.

These activities, plus the image the Institute has won, make its target of 10,000 members by 1981 feasible. Comparisons with the British Computer Society are inevitable, and it must be said that despite all its practical work through its specialist groups, the BCS still has not shaken off the unfortunate academic image which has dogged it during the Seventies.

One small example of where the Institute scores in the potential member's eyes over the BCS is the fact that the Institute has never awarded Fellowships — the top grade of membership — to big names in industry. It must continue to elect Fellows from within its ranks: it is this type of policy which will enable it to remain the organisation "of the people".

Unfortunately the Institute's administrative set-up has not grown with the increases in membership and activities. The single secretary in Maidenhead has been superseded by offices in London and three or four full- and part-time staff. There is now a need for a full-time top official.

Alan Benjamin at the Computing Services Association has shown what the right person at the top can do. A full-time official with enthusiasm can get members working to help each other and further the interests of the organisation.

Until now, Ted Cluff has been secretary-general on a voluntary basis. This has put a strain on his relationship with his full-time employer, NCR. The strain on his family of his extra work hardly needs mentioning.

If the Institute is to keep up its impetus of the last year it must make the secretary-general post a full-time one and choose very carefully the person for the job. Cluff is a good front-man and obviously has the enthusiasm for the position. There are rumours of discontent about his handling of some matters, but someone who devotes so much time to the Institute cannot be criticised severely. Besides, a paid official would be more accountable to his "employers", so any problems that might exist at present would be overcome quickly.

Computerview is surprised that last week's annual meeting did not vote immediately to fund a full-time official out of subscriptions or a levy. It chose instead to look to the industry. And the industry must reply positively.

For the industry stands to benefit from a healthy organisation like the Institute, which can do much to educate computer users and spread the word about new ways of solving problems, new technical developments and new management methods.

The Institute has reached a crossroads. It can now take a big step forwards. Or it can stand still. After a year of immense activity the latter could be disastrous, for interest could start to wane if there is no-one to keep up the impetus.

Ten years ago...

COMPUTER WEEKLY JULY 31, 1969

FIVE building societies were linked into an online accounting service operated by Centrefile, the National Westminster Bank's computer subsidiary. The system was designed to provide the benefits of a fully computerised accounting system without a heavy capital outlay ... The Science Research Council made a £5,000 grant to Brunel University to help develop a low-cost graphics terminal ... Orders for over £1 million worth of computers, an IBM 360/50, an ICL 1904E and an Orion II, raised the Prudential's investment in hardware to over £2½ million. The expansion was planned to cater for increasing batch processing needs ... A computer was to be used for the first time in Scotland to help pick prospective jurors for a sheriff's court. The machine, an IBM 360/60, belonged to Lanarkshire County Council.

Afternoon with James Martin

MEMBERS of the IBM Computer Users' Association are being invited to listen to the well-known database consultant James Martin, in London on the afternoon of Monday, September 17. Called "An Afternoon with James Martin", the [illegible] will be held at the Grosvenor House Hotel and will cost [illegible]

The session is exclusive to IBM CUA members and [illegible] covered by Martin will include word processing, what is commonly referred to as "futures", as well as database technology.

FOCUS

The right to privacy

WHILE most of us were assuming that the Privacy Report had been dumped — along with the recent Carter Committee proposals on the Post Office — into some bureaucratic pending file, a considerable number of installations have been responding to an industry survey initiated by the IDPM.

Far from objecting to proposed privacy legislation, DP management is keen to co-operate, possibly on the reasoning that if UK rules don't get them, then EEC regulations will.

Some pointers to the survey findings were presented at a Central London branch meeting where it did not take long to establish a conflict of views between those on the inside and outside of the DP installation.

One leading representative of the non-DP fraternity was Duncan Campbell from the National Council for Civil Liberties who believed that the sooner strong curbs were placed on computing operations, the better society would be pleased. Most of the ills of the world, he suggested, led back to the computer.

While the DP professional has his data head down over run compiles, the latest PAYE updates or the Downtime page in Computer Weekly, computers are causing alarm and abuse throughout the nation.

Police, it seems, have a particularly unfair advantage in their dealing with the criminal car-owning class, having the benefit of a direct datacom link to the Swansea Licensing Centre. Though whether this benefit poses a threat to the public is a matter of some debate. Swansea does not exactly enjoy the best of reputations for computing reliability and performance.

As is often the case, the computer, not the system or application, is made to seem the criminal. Critics appear to believe that by pushing a few terminal buttons, all data files *become instantly accessible*. Preliminary interrogations can be triggered by the novice police constable from the front seat of his squad car parked outside the local betting shop.

The odds on this particular exercise proving positive can be discounted by any ops manager. Even moving a VDU a few yards can produce unexpected results for the entire system.

However, it was generally agreed at the meeting that a closer interface between society and computers was desirable and if privacy legislation helps bridge the gap, then it will be no bad thing. The fears of the public must be taken into account, but achieving a degree of confidence will be difficult.

In particular, authenticating a valid listing of personal information seems to pose considerable problems. One troubled DP manager, for example, commented in the survey that very few individuals would be able to understand the technology of providing validated record print-outs. Another suggested that any listing function can have its logic distorted so that some elements of the database being interrogated can be suppressed.

Clearly the onus of privacy responsibility will rest firmly on the DPM — rather than on the *users, as the Data Protection* Committee recommends. Hardly surprising, therefore, that the survey came out heavily against the idea that only one DP expert should be involved on the DPC.

Representation, it was agreed, should include the IDPM itself.

If and when the privacy proposals are taken out and dusted off, there is little doubt that the original terms of reference will have to be extended. As the IDPM survey frequently asks, "Why pick on us?"

One DPM who feels strongly, commented: "Manual filing systems are far more easily accessible to the wrong eyes. Anyone who extracts data from a computer system illegally, deserves a medal plus a job in the DP team."

1984 and all that...

FIRST of two readers who sent in this example of the strange things people say in the media about computers was J. G. Pritchard, of consultants Pritchard Brown & Taylor, who wins £5.

Where, in less frantic times, [record] retailers had only a handful of labels and ordering codes to remember, today new labels, new prefixes, new prices arrive like musical meteors from that outer space known as the "ideas department of the producers." There is also the ever-aggressive computer which has its own ideas of which records should go — and whence.

David Lazell in the Guardian

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Lloyd

Lloyd chairs all-party IT committee

AN all-party committee of MPs and peers has been set up in Parliament to keep a watch on all aspects of Information Technology. Chaired by Ian Lloyd (Con., Havant and Waterloo), the committee will aim to keep legislators informed of important developments in the technology and applications of computers.

Lloyd has long been a leading light in efforts to push the importance of Information Technology within the Tory Party. The policy document put forward by him and some associates (CW, April 5) was received by the front bench with politeness but little action and it is partly the failure to establish a party committee that prompted him to organise a non-political body.

Other officers of the committee are John Butcher (Con., Coventry SW) a new MP until recently a marketing manager with General Computer Systems; Gwilym Roberts (Lab, Cannock); and Lord Lloyd of Kilgerran, a Liberal peer and a *barrister.*

In common with other all-party committees, this one will invite expert speakers to talk to MPs and peers, and arrange visits to see what people are doing in this area and to gather information. Legislation will not generally be forthcoming but where a clear need is detected the government will be informed.

Govt cuts threaten varsity computing

FRESH doubts have been raised over the future of university *computing by continuing* government cutbacks, only weeks after the Budget reduced the Computer Board's allocation by £600,000 (CW, June 21). A source close to the Board said, "It is in for a rough time, I suspect."

While the cuts in June only reduced the levels of certain activities, further reductions could force the Board to rearrange its plans substantially — or even scrap its whole strategy. Schedules for replacing university computers at specified intervals would have to be shelved. Universities could buy computers out of their UGC equipment grants, but these are threatened as well.

Prospects for microprocessor applications teaching in universities look good following a double boost of funding from the Computer Board and the University Grants Committee. Over £2¼ million is being spent on *central support facilities to help separate* departments run courses and research projects using micros.

The Computer Board money is going to computer centres, *while the UGC is funding* academic departments. In both cases the money is buying test equipment, logic analysers, and so forth, to be held in central microelectronics systems labs. The micros themselves will be bought by the individual departments as they go along.

The Computer Board has allocated £393,000 for capital equipment and £160,000 for current expenditure such as staff. So far 21 universities have had their applications for a share of the money accepted. The Board has set up a Microprocessor Assessment Group to monitor how universities spend the money.

The UGC is spending £1 million on equipment and just over £1 million on recurrent costs for this year. The two bodies are working closely together, but it was decided not to try to have central co-ordination for the schemes as universities differ greatly, and are better able to administer the work themselves.

Jim Alty, director of Liverpool University Computer Centre, who has been campaigning for *some time for a programme such* as this, described himself as "very pleased" with the decisions, saying they were exactly as he suggested. They were only stage one of the work that needed to be done, he added.

Thames trip

THE Association of Independent Computer Specialists has invited anyone in the DP industry to join its annual Thames boat trip, which leaves from Westminster Pier at 6.45 pm next Wednesday, August 8.

Tickets cost £3.50 and can be obtained in advance by phoning Dave Morton on 01-439 8731.

● An updated handbook, detailing its 70 member companies and their expertise, has been published by the AICS. It is available free from the association at Leicester House, 8 Leicester Street, London WC2. Tel. 01-437 0678.

BL to sell services

STATE-OWNED car maker, BL, is to start selling computer time and expertise on a bureau basis, following the establishment of two new subsidiary companies, BL Systems and BL Technology.

BL Systems, with headquarters in Redditch, is taking over the running of BL's five main computer centres. The aim is to provide comprehensive computer services for BL's internal use, and also to sell services to outside customers.

Some customers closely related to BL, such as dealers, are already using BL's computers for batch and online work. This service will now be extended, and BL Systems will also offer expertise in systems development and communications network planning.

BL Technology will provide long-term technological development effort for the company, complementing each operating company's own research and development work. Several of the operating companies are already investigating the use of microelectronics and microprocessors in vehicles, but it is expected that BL Technology will play a long term "overseer" role.

Trial release of ICL Kommfy

THE long-awaited rewrite of ICL's Kommfy communications package for 2900 series is now going on pre-release to a small number of trial sites, including the National Physical Laboratory, whose 2972 was installed last month.

Users have expressed dissatisfaction with the original Kommfy, and the rewrite has been expected for some months. The new version depends on release 5X32 of the VME/B operating system and offers improved facilities and faster execution.

As well as X25, Kommfy Mark 2 supports ICL's communications protocol XBM, and the new Full XBM contains a redesigned line protocol, CO3, which is instrumental in creating greater flexibility and resilience in terminal configuration — two of the areas picked out at the recent 2900 Club users' meeting as causing problems (Software File, June 7).

General release of Kommfy Mark 2 is still some months away.

NPL's 2¼ Megabyte 2972 is valued at £1.4 million, includes six 200 Megabyte EDS 200 disc drives and has now passed its acceptance tests. It is being linked to NPL's local packet switching network via a small PDP-11, rather than the ICL 7502 front end processor, because of NPL's experience with PDP-11s on the network.

The system is expected to provide a computing service by the end of the year to network users at the laboratory in Teddington, whose work includes research and development on national measurement standards and provision of a calibration service to industry.

Access to network services is also available to users in Europe and the US via connections to the European Informatics Network and the American Research Project Agency network, Arpanet.

New facilities will be added to the service provided by the 2972 as user demand builds up, but initially it will take over jobs currently run in Fortran and Algol on a pair of KDF9s which were first installed in the mid-Sixties. Users will convert their own programs, which should be straightforward for Fortran, while Algol conversion will be aided by the text editing aids already on the network.

Eventually computing on the 2972 and other network services on machines which include DEC PDP-11s and CTL Modular 1s, will be linked to users via an X25 network currently under development at NPL.

Lowndes-Ajax US investment

LOWNDES-AJAX has acquired 56% of the equity of Social Services Inc, of North Carolina, whose corporate modelling system Simplan the bureau installed last year. SSI's turnover for 1979 is expected to be $1.75 million.

As part of the deal, the joint operation set up by the companies earlier this year as SSI International (CW, April 5) will become a wholly owned subsidiary of SSI.

Tesdata enhancement from Teknos

TESDATA performance monitoring systems users looking to improve the accuracy of their data recording are now offered a microprocessor-based unit by Teknos Systems that can interface a 9-track phase encoded tape to a Tesdata monitor.

Teknos points out that the use of a 9-track tape provides error detection and validation facilities not available with the 7-track tapes found on some older Tesdata monitors. The Teknos offering also comes with a printer which is used to indicate if the Tesdata patch panel has been set up correctly for the particular functions that are to be monitored.

Teknos, based at Uckfield, Sussex, says that the use of its product with a Tesdata system prevents complete performance monitoring runs having to be repeated because of errors in the patch panel or in writing to tape.

The first user of the Teknos product is the Research and Development Division of the British Gas Corp at Fulham, London.

The Teknos product costs £12,000 for which the customer gets a complete hardware/software package, including a 9-track magnetic tape unit and a printer.

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Guardian Royal goes SNA in £4m project to link its 50 branches

A PROJECT, costing between £3 and £4 million, to link its 50-plus branches to an IBM 3032 mainframe using SNA, is under way at Guardian Royal Exchange Assurance.

"Our 3032 runs under MVS, and we have decided to go SNA," said a spokesman. "However, we are looking at several minicomputers and will not necessarily use IBM."

A leading contender for the system is the new IBM 8100 remote processing system, particularly attractive in that GRE does not at present have any terminals in its branches, so there would be no problem over conversion from the older 3790 SNA processor.

"We are looking very closely at the 8100," said the spokesman. "It looks quite impressive, and would meet our requirements, but one deciding factor will be availability for delivery."

Despite its integral 3705 processor, the 4331 does not appeal. "The 4331 looks like a basically batch machine and we want to do transaction processing," he commented.

Among the independent suppliers of remote processing systems with SNA communication capability are Ventek with the Datapoint systems and Computer Automation with the Syfa.

First terminals are due to be in by summer 1981, and GRE is hoping to have all non-life business running on the system by 1985.

Strike halts trade figures

THE strike at the Customs computer centre at Southend earlier this year has resulted in no overseas trade figures for the first quarter of 1979 being published in the latest set of statistics from the Department of Industry on sales by UK computer manufacturers. The DoI said that the missing figures would be included in the next set of statistics.

Also missing from the latest statistics are the 1978 quarterly export figures for digital systems and analogue/hybrid machines. According to the DoI they will never be made available because the Customs has not been able to revise the original grossly inaccurate figures. The inaccuracies were reported exclusively in Computer Weekly early this year (CW, February 8).

The only figures that Customs has attempted to revise are the 1978 export totals which are quoted now as £124 million for digital systems and nearly £12 million for analogue/hybrid machines. The latter figure would have been an unbelievable £73 million if the erroneous figures had been used.

Total computer equipment exports in 1978 came to £629 million compared with £498 million in 1977, but imports showed an equally dramatic rise — from £691 million to £827 million.

Total sales of all kinds of computer equipment by UK manufacturers in the first quarter of 1979 came to nearly £245m, compared with £253m in the fourth quarter of 1978.

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Downtime
by Chris

Parodies lost, but Nexos won

FAME at last for our very own office systems firm, Nexos, in being mentioned in one of the glut of parodies of The Times published last week. It was listed among the firms to be bought up by Arabs after being put on the market by NEB-slayer Keith Joseph.

Arabs are also supposed to be buying St Paul's Cathedral and shipping it brick by brick to Mecca. Not very funny.

The same judgment can be made of most of the stories in the parodies, particularly the more ambitious one, "Not Yet The Times". Stories included gems like "Government to abolish income tax", "Queen to divorce Duke" and "London's third airport to be in Regent's Park."

The whole point of parodies like this is that the stories should be just about believable, so that you are left with a nagging doubt that maybe they are in fact true.

"Not the New York Times," which came out during a strike last Autumn, managed this beautifully with such stories as the collapse of the Triborough Bridge because of sympathetic vibrations set up by hordes of early-morning joggers. Mind you, "Not Yet The Times" had a good idea in the granting to Kerry Packer of exclusive rights to televise Parliament.

One obvious story they missed was that The Times management is going into business offering courses on how to conduct union negotiations.

Talking of spoofs, we at CW have been thinking of producing a special issue containing such stories as these. Keronix accuses Data General of trying to burn down its factory... IBM tries to appeal, not against a judgment, but against the judge himself in its anti-trust suit . . . Larry Goshorn complains that General Automation is keeping him out of his own building with armed guards... Polish plug-compatible 1900s threaten ICL.

There's more ... MPs claim that Christmas cards are being bought from Russia in exchange for computers ... Xerox sells its minicomputer business and then hunts around for a minicomputer to put in its office systems.

What will be different about this spoof, though, is that these stories are *all true!* Who needs to employ humorists any more?

"We programmed in a bit of temperament . . .."

Computer Board time warp

A PUZZLED reader has written to us about our Ten Years Ago feature of July 5, which reported that in 1969 the Computer Board was three years behind in its programme. Since the board has only been in existence for two years and 10 months, would it have gained two months by not coming into existence at all, our reader wondered?

With my usual conscientiousness I have blown much dust off archives in investigating this and can report that in fact the story does make sense after all. It seems the board had originally planned to have 140 computer units installed by March 1970, but had been so seriously delayed that it was estimated this figure would not be reached until 1973. Sorry to ruin a good paradox.

Pupils outstrip teachers in micro knowledge

by Malcolm Peltu

The dangers of the over-enthusiastic spread of micros in schools, the need for adequate backing and training for teachers, and the necessity for government promotion of micros in education were some of the subjects raised at the annual conference of the group known as Micro/minicomputers Users in Secondary Education, Muse. MALCOLM PELTU (left) reports on the conference for Computer Weekly.

"COMPUTERS can blow the minds of children in a way that no other educational activity can," according to David Tinsley, general inspector of schools in Birmingham.

Starry-eyed love at first keyboard touch is indeed becoming an increasingly common condition among pupils and teachers in schools. Like any other infatuation, however, the blush of new love can quickly turn to heartbreak and anger if the real world fails to live up to the dream world.

"I am unhappy that micros have been taken up so quickly and keenly in schools," Tinsley bravely told the annual conference last month of the Micro/minicomputer Users in Secondary Education, Muse. But instead of receiving hostile reaction from the micro converts, there was general agreement that an uncontrolled spread of microcomputers in schools could be counter-productive.

Reflecting the explosive growth of interest in the educational uses of computing power, Muse itself has grown ten-fold in two years to around 400 members, but their enthusiasm for proselytising their cause was restrained with a healthy dash of concern that there should be adequate support for teachers.

David Firnberg, director of the National Computing Centre, told the conference "It is a national disgrace that schools do not have ready access to well-organised computing capabilities," including specialist advice, standards for software development and exchange, expert encouragement and appropriate information.

David Tinsley said he feared that the prospects for the creation of such capabilities would get worse unless the government made a positive act of discrimination in favour of microprocessor and computing education.

Tinsley also pointed out that one of the major challenges to Muse members would be to encourage the development of reliable teaching programs which met real educational needs.

This would require not only good software expertise but also skilled authors who could structure educational needs into appropriate programmed instruction forms.

An example of the way in which the computer can stimulate children's interest and extend its influence beyond the maths department was given by Tony Clements of King Edward VI Five Ways school in Birmingham.

A French-language instruction program was implemented on the school's computer network, which is based on a Hewlett-Packard HP 2000. And although adolescent boys usually run shy from French teaching, many were now opting

Firnberg

for computerised French at lunchtime instead of sports.

The newly elected chairman of Muse, John Coll of Oundle school, said that over the next year Muse should concentrate on trying to develop standards for software and systems development which would help to promote more exchange of material and push the appreciation of how computers can be imaginatively and effectively used in education.

A concern which was continually raised throughout the conference was how best to provide support for teachers who can see the way a micro or mini spark could start a forest fire of interest among the pupils, but who fear it will be difficult to provide reliable systems to meet the demand.

Few teachers have received any formal computing training and it is now common to find that the students quickly become more proficient than the teachers.

Tinsley also highlighted a disturbing trend for teachers with computer know-how to leave schools, where their salary could be around £3,600, for more lucrative jobs in industry. So, even the little expertise that exists in the educational service is being drained away.

A former Muse chairman, Roy Atherton of the Bulmershe teacher training college in Berkshire, was pessimistic about the prospects for significantly increasing training in the use and understanding of computing and microelectronics.

Owing to the falling school population, teacher training is generally being cut back, so even if there were a significant increase in computer training for new teachers it would take a long time to make a widespread impact in schools.

Both Tinsley and Firnberg stressed that an external framework of support needs to be created to assist teachers, with Tinsley emphasising the need for dedicated support from the local education authority and Firnberg offering a national perspective.

Tinsley, who has worked for IBM and the National Computing Centre, has played an important part in developing, in Birmingham, one of the country's most comprehensive support schemes for computer education in schools.

The Birmingham areas has a computer centre backed by computing specialists to provide computing capabilities for schools, mainly terminal-based at present, and also to develop a structured approach to introducing computer-assisted learning into schools.

Birmingham has tailored the ICL Computer-Assisted Management Of Learning (Camol) system, which offers a method of teaching children using interactive terminals and recording their results. He warned, however, that it had cost about £5,000 to develop a Camol service for an "A" level Physics project.

Birmingham has now employed a full-time mathematician and a part-time "Camol driver" to create Calm, a Computer Assisted Learning Module service. This will enable specific educational modules to be developed and then "plugged in" within a Camol framework.

In terms of computing capabilities, Tinsley would like to see a coherent approach starting with specially developed desk-top aids and moving through micro and mini based school capabilities to local authority and national information services such as the Open University computing service, Prestel, local polytechnic and public library facilities.

He also foresees a time when computing takes education out of the school, and Birmingham is already conducting an experiment in home-based teaching for sick children using a computer terminal.

Atherton

Firnberg stressed that coordinated national policies are needed to ensure that grant money is channelled in the most efficient way.

He said he would like to see a combined government programme encompassing the whole educational system with other departments and agencies such as the Department of Industry and Manpower Services Commission and local education authorities.

For the Muse members there is a clear national need for promoting wider awareness of the techniques and uses of computers, microelectronics and telecommunications. The Labour government recognised this need and during its last year began to pour large sums into giving priority to the development of micro awareness.

There is a fervent hope among Muse members of all political shades that the current government will also sees the need for special attention being given to the stimulation of technology training, although they are acutely aware that with teachers' jobs being threatened, school meal prices rising and other effects of government cutbacks, it is going to take a brave education minister to single out computer education for exemption from the public expenditure axe.

And if the Department of Education's £12.5 million package is cut, there are many teachers who fear the creation of new educational worlds in which only schools with access to powerful backing are able to buy microcomputer power, leaving the majority of State schools starved of one of the most effective and exciting teaching aids ever developed.

MUSE Letter planned

BOOK publisher Longmans is to publish the MUSE newsletter, called MUSE Letter.

Longmans is also interested in the possibility of publishing software programs, but some co-ordinated method would have to be found to agree on program and documentation standards before this would become feasible.

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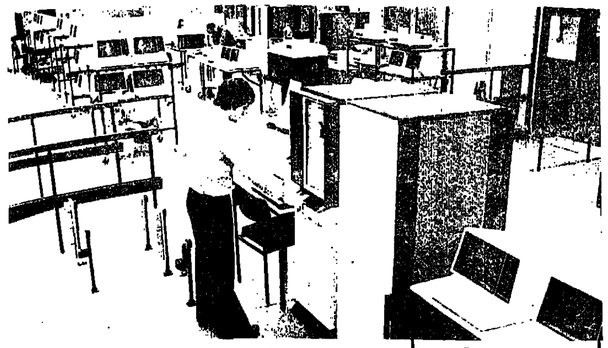

More money for multi-micro project

THE success so far of David Aspinall's multi-microprocessor project at Manchester has led to confirmation by the Science Research Council of another four years' support for the work and further funding amounting to £250,000.

Now that the basic hardware, 16 Intel 8080 micros, is working, staff at the University of Manchester Institute of Science and Technology are pressing ahead with performance trials and development of languages.

The project, run jointly by Aspinall, Erik Dagless of UMIST Electrical Engineering Department, and Roy Dowsing of University College Swansea where Aspinall previously worked, is part of the SRC's Distributed Computing Programme (CW, October 12, 1978).

The machine, consisting of 16 interconnected micros, has been given the Welsh name CYBA ("cubah") and is intended as a research vehicle for developing multi-processor systems and investigating the efficiency of such techniques compared with conventional computers. The management of concurrent processes and the size of contention problems over, say, shared main memory are among the matters being investigated. A hardware monitor is being built which can analyse performance down to the machine cycle level.

If multiple micros turn out to be more efficient for many processes than big time sharing machines, it is hoped that the project will be able to identify the reasons why and formulate design rules for such systems and further the global memories that will go with them.

One such experiment has already been performed, Aspinall told Computer Weekly, in which looping processors were added in one at a time to see how much their occasional accesses to central memory interfered with each other. Performance degradation with all 16 was less than ½%.

Dowsing at Swansea is working on languages and operating systems. A special intermediate-level language called CYBA-L has already been designed and it is hoped that this can be issued to outside users by the end of the year. A communications link to CYBA is being laid on so that other workers around the country will be able to carry out their own experiments without building new hardware.

One possibility is to use CYBA for a multiple-pass interpreter, doing all the passes simultaneously on different processors. It is also possible to emulate different inconnection structures, such as busses and rings, on CYBA. Other upcoming research work includes reliability by redundancy, graphics, and sorting.

Success story

THE biggest success story at Honeywell in the past five years has been the Level 6 minicomputer line, and to keep up with the high volume of business, the company has moved system commissioning into a new 12,500 square foot building at Hemel Hempstead. The facility at Hemel, shown here, is used for commissioning systems for the Continent as well as the UK.

Memorex lead shrinks

FINANCIAL figures published by the two top suppliers of IBM-compatible peripherals, Memorex and Storage Technology, show that Memorex is still a lot bigger than Storage, but that the latter is growing considerably faster and is far more profitable.

The figures from the two firms both relate to the second quarter of 1979. Memorex revenue was more than $181 million compared with less than $120 million for Storage, but the Memorex figure was only 14% up on the same period last year while revenue at Storage grew by a formidable 79%.

The difference in net profit growth between the two companies was even more dramatic. Memorex net profit grew only 3% to $10.6 million, while Storage saw an impressive 73% increase to $9.3 million.

Reasons for the big difference in growth include the fact that Storage has only recently started to exploit European markets like the UK and Italy, while Memorex is an old-established company. At the same time, Storage believes that it has been far more successful with its IBM 3350 alternative than Memorex.

Robert Wilson, president and chief executive of Memorex, blamed the pressures of inflation, energy and recession as being partly responsible for the effect on Memorex's profits, and he also cited IBM's disc drive price reductions.

Wilson made no mention of the possible effects of Storage Technology on Memorex business, but he admitted that Memorex net profits for the whole of 1979 would not reach the 25% increase previously indicated to be achievable.

NatSemi drops System 200

NATIONAL Semiconductor has dropped the development of its System 200 minicomputer, the machine that was compatible with the Digital Equipment PDP-11/34 and which was the main reason for National's anti-trust suit against DEC over DEC's PDP-11 patents.

National said that the death of the System 200 programme was assured earlier this year when DEC won a motion to have the case transferred from the Federal District Court in San Francisco to Concord, New Hampshire, which is near its headquarters in Massachusetts. The transfer of the case delayed the completion of the litigation.

However, National added that it was carrying on with the suit because it might want to enter the DEC compatible market.

NCC to train real time programmers in joint scheme with MSC

DESPITE likely cuts in its budget, the Manpower Services Commission is to press ahead with a new joint scheme with the National Computing Centre to train real time programmers.

The scheme will provide for the training of up to 200 programmers a year on 24-week courses prepared by the NCC. The courses will probably be run at local polytechnics, and funds to pay for staff to attend them will be channelled to employers via the Industry Training Boards.

Assuming that grants are made at about £70 per person per week, the annual cost of the scheme could be about £400,000.

The government is reported to be pressing for cuts in the MSC's budget, of between £300 million and £450 million over the next three years.

However neither the new scheme nor the existing Threshold programme would be affected, said an MSC spokesman, should the cuts be implemented. He stressed that the Press reports were "speculation".

A substantial part of the new NCC courses will be devoted to the Mascot methodology, which the Ministry of Defence has adopted as a standard for real time applications.

Mascot will not be the only methodology taught on the courses, the need for which emerged following a joint MSC-NCC investigation of the shortage of real time programmers.

In addition to the MSC scheme, the NCC is close to completing plans for two further co-operative ventures in real time training.

The first, to be undertaken under contract to the DoI, is to create a course for managers of real time programming projects. This would be similar to the existing Coral 66 programming course, providing materials for use by companies in-house.

The NCC hopes to hold a pilot course in this field in November or December.

The second NCC project is to create a new HND course in computing with an emphasis on the real time field.

VME/B for National Savings

RATHER than use DME/System 4 on 2960, the Department of National Savings has decided to convert straight to VME/B at its Glasgow and Blackpool installations. In Glasgow, where the National Savings Bank has twin System 4/72s, a dual processor 2972 is to be installed, while twin 4/72s in Lytham St Annes which administer the Premium Bond Register and Save As You Earn contracts, are to be replaced by a 2976.

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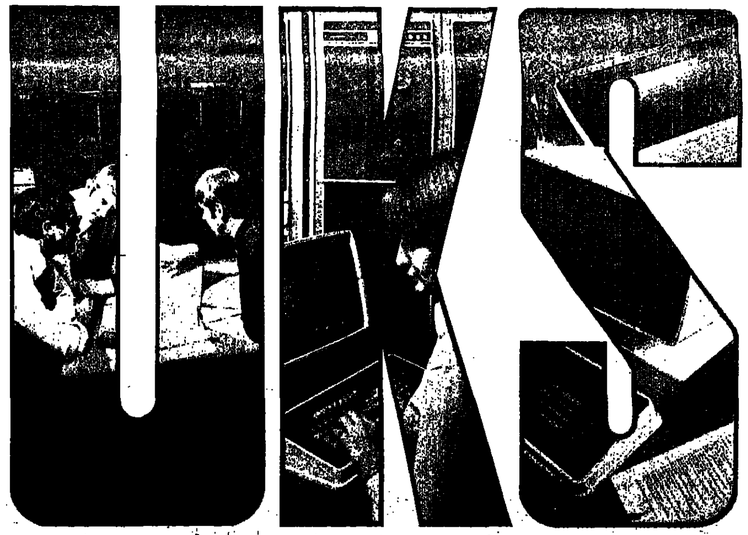

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GILB'S MYTHODOLOGY

Evolutionary planning and delivery: an alternative

AT a London theatre I saw a reconstruction of the storming of the Winter Palace during the 1917 Russian Revolution. There were a lot of dead bodies afterwards, dramatised with the help of the audience playing minor parts.

One of the key issues raised during the play was whether revolutions really need to be carried out violently in the future, or whether there are more peaceful means available.

I should like to raise the same issue about computer system projects. It is my observation that most projects are planned with a revolutionary implementation.

This is true even for most projects which are delivered in two or three phases. Each of the phases is far more revolutionary, or prone to high failure and risk, than it needs to be in order to satisfy the future system user.

I think most of us accept that some degree of evolutionary systems implementation is desirable. We differ in the degree of practice and in the degree of formal training in evolutionary planning methods.

The saddest thing I observe at various sites is that planners have never really been trained in methods of evolutionary system delivery. They have not even been given a fair chance to consider it.

The traditional life cycle concept — analysis, design, implementation, operation, maintenance — is taken for granted. Neither management nor planners seem to consider alternative life cycles.

In the confines of a short column I cannot hope to explain or argue this issue convincingly. Sadly, I must confess that I am not even sure I can teach evolutionary planning in a much greater space.

It seems to need practical demonstration on your own project. But if a few readers can be encouraged to rethink some of their planning methods, the column might not be wasted.

I personally have experienced evolutionary planning and implementation as one of the most useful practical "breakthrough" tools in solving seemingly impossible problems of short delivery schedule or cost and risk control. I hope to find some means of sharing it with the reader.

One danger for the reader is that you may believe you agree with the evolutionary principle and that you practise it fully and formally.

I'll bet you are wrong in that assumption, and I would be very interested in hearing from the exceptions. There is, to my knowledge, almost no literature or courses which even attempt to teach the discipline. Thus those who do practise evolutionary design have probably taught themselves. I am not referring to top-down design and implementation methods as taught by IBM.

Top-down program design and implementation breaks one of the most fundamental rules of what I call evolutionary delivery *"Every implemented step shall be of use to the system user."*

Even a small project, six months' work for example, might be planned with 10 to 20 more such deliverable steps. Every step will be one which changes the work situation of the user — hopefully in a positive way.

I sometimes refer to this as a "mountain goat" approach. Each step brings us closer to the ultimate objective. We have a clearly defined ultimate objective (the mountain top) and we have a global plan for getting there (the planned route to the top).

But we take one step at a time and test the mountain surface with our feet. We take a close look at the immediate future climbing area. We note how tired we are thus far, and how much time we have used.

We decide if a longer rest period is needed than originally planned. We may even see the possibility of minor detours from the detailed route, so as to ease the climb, or to pick up some greener grass on the way.

In large projects, I use a hierarchical explosion method in the planning. There are a maximum of 10 steps to a level of planning. Each step can be exploded for further planning detail.

The first step, called zero, of each new explosion is a planning activity for the remaining steps, and it is the only one allowed to escape the requirement for producing some result for the user, however small.

Each step is planned in terms of time, people and products, using at least five to 10 controlling parameters (such as number of pages of documentation produced, number of additional test cases to be made).

I find this most useful in estimating total projects and in estimating progress during projects.

There is a frequently voiced excuse for not using this method which we can all sympathise with: "My boss wants it completed yesterday". I find that this is a self-defeating interpretation of what the boss wants. The boss wants early results. No other method gives such early results in practice.

The fundamental question the planner asks when the global planning is completed, is: *"What is the smallest useful but important step we can plan to implement next?"*

It is positively amazing how you can find answers which allow you to provide useful starter systems to your users in weeks and months rather than months and years.

At a rough guess, 30% to [illegible] of the useful effect of the system can be provided in 5% to 15% of the elapsed project time. Believe me, bosses appreciate that [illegible] of computer project.

Do not, however, underestimate the resistance to this kind of planning from narrow-minded perfectionist planners. "Everything sometime" could be their motto. "Something useful now" is the evolutionary m[illegible]

Ah, the end of this column draws near, and so many issues are still untouched. So [illegible] you are mentally voicing objections to which there [illegible] answers which can be found applying an open-minded common sense to the problem.

But I will return to evolutionary planning in the next column to cover some of the issues.

In the meantime, some of you could try the the experiment: working out an alternative plan for your most important project, namely, an evolutionary [illegible] with at least 20 to 50 deliverable phases, rather than the [illegible] presently planned by you.

Don't be afraid. It is only a paper plan, but it might [illegible] you!

The only ad in this paper printed with a Laser

The ultra clear print in this advertisement has been produced by one of our IBM 3800 laser printers.

Your printing too, could be as clear by using this remarkable new method, which is over ten times faster and of far superior quality than a conventional impact printer.

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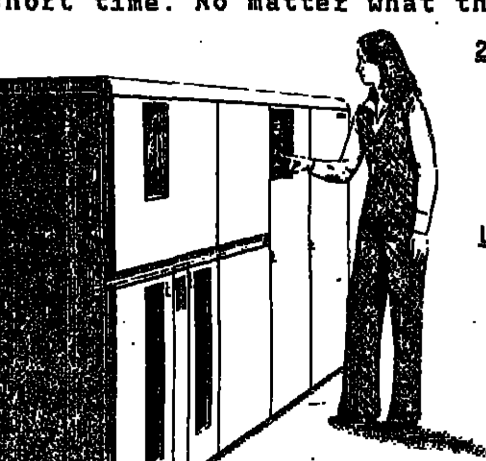

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3800's can print up to 20,000 lines of ultra-clear images every minute. Every copy of any document is an original as there are no carbons or ribbons used, and so the quality never deteriorates.

LASER PRINTING ADVANTAGES
Among the many advantages we can provide with the 3800 are these:

* A forms overlay service for the production of business forms (part of this ad was produced using the overlay service).

* A SMALLER PAGE SIZE AND USE OF SMALL - HIGHLY LEGIBLE PRINT CAN CUT FORMS COST CONSIDERABLY, SUCH AS CAN BE SEEN IN THIS PARAGRAPH.

* A copy modification facility, which allows information to either be added to, or extracted from each page.

* There are 20 standard character sets available. Up to 4 sets can be used within each word and line per page. 3 shading densities within each set further increase design flexibility.

* Your own characters and character sets can also be designed.

The superior quality and speed of our 3800 laser printers is available right now. Not only for printing data from your tapes, but for sales letters, circulars, manuals and brochures as well.

To find out more about our printing service, contact Lynn Bonner.

She'd love to hear from you.

Tesco Management Services Ltd
Computer Consultants

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Online access from ships at sea

THE telex capability announced by I. P. Sharp earlier this year (CW, January 11) has allowed the company to demonstrate online access from ships at sea — the first time that a commercial computing service has been made available in this way.

In an experiment conducted on board the QE II, an ordinary printing terminal was used to access databases held on Sharp's Toronto system. Both telex and communications satellite facilities were used.

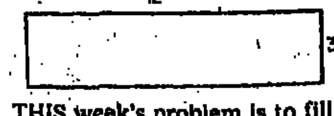
Fred Perkins, head of I. P. Sharp in London, commented that the development was one more step freeing businessmen from the confines of their office. "They can work on an ocean voyage just as they would if they were at the office."

● Two more local centres have been opened by I. P. Sharp, extending the areas in which customers can enjoy access at local call rates. One is in Dublin, where Gamma Data Systems is acting as the agent, and the other is in Oxford.

Benelux offices

OFFICES in Luxembourg and Brussels have been opened [illegible] BIS Software to sell and support its Midas banking system. Midas has now been ordered by [illegible] international banks.

Puzzler



THIS week's problem is to fill a 12×3 rectangle with eight integer-sided "tiles" having respective areas of 1, 2, 3, 4, 5, 6, 7 and 8. The job must be done in such a way that no internal grouping, of two or more tiles, makes up the outline of a subsidiary rectangle (ie, other than the 12×3 main figure itself).

This condition means, for example, that the 1×1, 2×1 [illegible] 8×1 tiles may not be [illegible] together to form a 3×[illegible] block. Furthermore, the 3×1 tile cannot be stood "on end" in [illegible] position, since the other [illegible] units would then form an [illegible] subsidiary rectangle.

The first task facing the would-be solver is to decide exactly what shape to make the 4, 6 and 8 tiles, because obviously each of these [illegible] may be delineated in two "[illegible]ral" ways. See page 37 for solution.

SOFTWARE FILE

By Peter Hewitt

Series 1 spawns flood of packages

THE spin-off from US software house experience with IBM's Series 1 has been a flood of system software packages. This process has now begun in the UK, with a rush of announcements by Scicon, Altergo, and Amba Software.

Most prominent among Scicon's offerings is a fast dump/restore package. Obviously intended to handle the problem of back-up at sites without a tape unit, a notable feature of the software is data compression; this enables a reduction of up to 75% in the number of back-up floppy discs needed, according to Scicon.

The package, which is claimed to reduce dump/restore times by a third, also caters for multivolume floppy disc processing and sequence checking. It costs £600, and operates with the 4962 and 4963 disc units, and with the 4964 floppy disc and 4966 floppy disc magazine.

Other Scicon products include a screen formatter for the 4878 and 4979 VDUs; a report formatter; and an indexed file management system. The latter caters for both fixed and variable length records, and includes facilities for file initialisation, reorganisation and recovery.

All four Scicon products are written in assembler for use under the RPS operating system. They are supplied on floppy disc in executable code form.

Altergo's two packages, also for RPS, extend the device support of the Series 1 to non-IBM peripherals.

The first allows the Hazeltine 1510 to be used as a 4979, with the advantage that it can access the processor remotely using a private or switched line and a modem. Attachment is via the asynchronous communications adaptor at a speed of 9,600 baud.

The 1510 also has a standard typewriter keyboard, eliminating the need to learn the data entry type keyboard on the 4979.

Altergo's other product provides line printer support under RPS for the TTY 40 line printer. The TTY 40 can be attached without a modem at a distance of up to 240ft or with a modem at any distance.

Already in use in its Series 1 developments for Tube Investments and Britannia Airways, Amba Software's packages are all designed for use with the EDX operating system.

The main product is a blocked record data access method, ADM, which enables any size of logical record to be contained within any size of physical block. Both the block size and the record size may be defined externally to the program.

Amba says that ADM results in much improved data packing as well as high performance, and takes advantage of the latter in AMSort, a multi-phase disc sort which uses ADM. AMSort caters for up to 64,000 logical records, sorting on up to 38 separate keys.

Amba has also written an indexed access method for use with ADM, permitting multiple keys per file and yielding an average access time of 50 milliseconds regardless of file size and key length.

Amba's final product is a package for printer spooling. Providing a variety of facilities for controlling up to 26 classes of output, it requires no modification to existing programs and can therefore be used both with application programs and system programs, including, for example, the EDX assembler.

NCC backs author language project

A SUBSTANTIAL project to develop a new author language for use in computer assisted training, now under way at Mills and Allen Communications, is likely to cost about £320,000 over the next two years. It is being backed by the NCC's software products scheme and by the DoI.

Mills and Allen is keen that the language should be fairly portable and that it should be possible to build CAT systems using it on a stand-alone microcomputer. Although the implementation language has not yet been selected, one strong candidate is Pascal.

Unlike computer aided learning, which is typically geared to providing standard academic instruction, computer aided training is oriented to exercising students in real-world procedures. An author language is thus needed to enable instructors to build courses specific to local requirements.

Among existing languages for this task are IBM's Course Writer, part of IIS and CDC's Tutor, part of the Plato system.

Although the current project is the company's first major corporate venture in this field, several Mills and Allen staff have significant prior experience. M&A director Richard Hooper, for example, was previously the director of NDPCAL, the National Development Project in Computer Assisted Learning.

ACS sets up transport systems company

APPLIED Computing and Software's growing involvement with transport systems has culminated in the formation of a separate associate company specifically to handle this business.

Called TACS, Transportation and Applied Computing Systems, the new company is likely to concentrate initially on freight forwarding and shipping systems. In particular, it will be responsible for marketing the packages acquired last year by ACS from S. M. Byrne.

The most significant of these is Ships, a real time system for shipping lines, shipping agents and forwarding agents. Ships supports up to 64 concurrent users and is written in Mumps for the Digital Equipment PDP-11.

Users of Ships include Bell Lines, with six sites, and Ocean Shipping Agencies, for which ACS last year converted the system to DEC Standard Mumps, DSM-11.

Closely related to Ships and also written in Mumps is Freights, for handling European export freight forwarding. Though available separately, Freights can also be incorporated into Ships.

TACS will, in addition, be marketing the S. M. Byrne system Cudos, which runs on an Olivetti P6060 minicomputer producing customs documentation and associated job sheets and invoices.

● ACS has recently moved to new offices at 37-39 Bowling Green Lane, London, EC1 which is also the headquarters of TACS.

PROGRAMMER NOTES

How real is this staff shortage?

A SAD effect of the general mystique surrounding software is that many people have only a poorly formed idea of the varied skills needed in a programmer. Even sadder is that misunderstanding of the programmer's task is not restricted to those outside the DP department.

The result of these confusions is that in many cases the only acceptable proof of programming ability is programming experience. And where this requirement is relaxed, other quite irrelevant qualifications may be called for.

Such obstacles facing those who wish to enter a profession are not, of course restricted to computing.

However, in the case of DP, the serious shortage of skilled staff makes a "closed shop" policy singularly inappropriate.

On a recent visit to London, John Imlay, president of the US data processing service organisation, Adapso, predicted that — barring the much more widespread adoption of packaged software — the current dearth of expert software staff would reach crisis proportions by next year.

And nearly all those in a position to see concur in viewing the staff shortage as the most serious single problem facing the industry.

These remarks are prompted in large part by a letter from an ex-operator who has been trying for some time to get into programming. Finding this progression impossible in his installation, he took a TOPS course in programming at the Guildford County College of Technology.

This he completed in December last year, gaining high recommendations.

Since then, almost 150 applications for a post as a trainee programmer have resulted in only a single interview, and he still sees no prospect of a job.

One factor which appears to have been important is the requirement for formal qualifications.

"In most cases it has emerged that either a degree — though not necessarily in computing — or at least five "O" levels was a prerequisite. Unfortunately, I don't qualify on either count, so what do I do now?

"My enthusiasm for getting into programming is still high — even after seven months — but for how much longer? The supposed shortage of programmers cannot be entirely real, or else somebody would surely have given me the chance to prove that I can do the work involved."

It seems a shame that someone of demonstrated ability, who already has several years' experience of DP operations, should find it impossible to gain a position, even as a trainee.

Clearly, no amount of training — or amassing of qualifications — can guarantee either that one will get a job or be able to do it.

But is there not a case for greater flexibility on the part of employers taking in trainees in programming — a job for which the demand so far outstrips the available supply and the difficulty of which is frequently over-estimated?

● Programmer Notes is a forum for the discussion of both technical and non-technical matters related to programming. If you are an applications or systems programmer and have views on this or any other aspect of programming, please write to: Programmer Notes, Computer Weekly, Dorset House, Stamford Street, London, SE1 9LU.

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951 Floppy Disc Unit	105	75	65	[illegible]
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2645A	208	156	130	[illegible]
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4012	424	317	277	
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4014-1	760	571	523	
4015-1 ASC11/APL	829	622	567	
4016-1	1311	945	790	[illegible]
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9845S	1160	870	725	[illegible]
9862A X-Y Plotter	221	162	135	[illegible]
9866B Thermal Printer	216	162	135	[illegible]
9871A Printer/Plotter	240	180	150	[illegible]
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OP SPOT

By Bernard Allen

Altering schedule under IBM OS

THE IBM OS operator is able to alter the work schedule by delaying the running and printing of jobs. He achieves this by means of two commands — Hold, and Release.

In relation to the system input queues, he uses them to defer individual jobs or entire work streams. To place a single job in a hold state, he enters

H Jobname

and to release the job for processing by the system

A Jobname

On certain occasions, it is necessary for the operator to hold entire queues. For example, if one or more of the system's tape drives are under service, it may be necessary to hold the job stream comprising heavily tape-dependent work. Command

H Q=queue class

and when the tape drives are available again, he types in:

A Q=queue class

Similarly, staff shortages might mean that the console operator had to leave his station. On such occasions, he is often faced by mounds of system requests on returning to the console. By holding the appropriate queues he can prevent this and so make his task easier.

Under IBM OS, poor scheduling sometimes leads to main storage fragmentation with the result that small areas of it become unusable. To overcome this it is necessary to bring the system to a standstill, and the procedure involved includes holding all system queues, as follows

H Q

To release them again, the operator types

A Q

Hold may also be used to defer the printing of jobs which are on the system output queues. However, in my experience, this is not a common practice.

IBM OS operators usually reschedule such jobs by modifying the output classes to be served by each of the systems output writers.

Bevan moves into management

RUSS BEVAN, former chairman of the now disbanded Opcomm, has moved into management. He is head of operations at Rank Hovis MacDougall's installation in Bristol.

Bevan gained the position after going through a RHM management training scheme (Op Spot, May 10), part of which involved filling in for managers at the company's sites all over the country.

His installation, which runs work for RHM's bakery in Bristol, has an ICL 2903, with a small team composed of two operators, and job control and data prep staff.

Obviously enjoying his new role, Bevan said, "I am very pleased to be off shift work. Much of the work I do is similar to what I did as a shift leader, with the difference that it's recognised and I get paid more."

Bevan and his family still live in their native Coventry, but he hopes to find a house in Bristol soon.

Another tip on the 'quiet phone'

IN response to a hint regarding the use of telephones with a volume adjustment facility (Op Spot, July 12), Jeff Finney, shift supervisor at Shell in Manchester, comments "At the installation where I am employed, we have found that machine noise is also amplified, thereby reducing the advantage of such telephones. The Post Office does, in fact, market a handset which has a cutout button. This cuts out the mouthpiece and so prevents machine noise being picked up."

Obstacles on an op's career path

OPERATIONS staff face a real problem in relation to career progression — a fact well illustrated by the case of former operator Terrence Tootill (see this week's Programmer Notes).

After some five years in operations, Tootill was unable to find a position which he felt would make use of and reward his hard-won skills. He tried to transfer to his site's programming section, but was unable to do so.

So he left his company, and with a view to moving into programming, went on a TOPS course. Despite this, and the fact that he holds the appropriate City and Guilds certificates, Tootill is still unable to find a job as a trainee programmer.

Well, in my view any operator who wants to become a programmer should be given the opportunity to do so by his company. A good method is to let the person concerned work in systems and programming for a trial period of a month or so — this gives him the chance to see what the job involves and enables the department to find out if he is suitable.

But, to me, the fact that staff feel the need to swop from operations to programming is a sad reflection on the state of the industry. It indicates that managers in general just are not aware of what operators have to offer in terms of skill and experience.

By working in the operations department, staff gain a wide range of practical experience. This covers the areas of hardware and software, and dealing with users, something which can be a bit trying at times.

And shift leaders, in particular, must learn to use supervisory skills if they are to get the best out of their team of operators. They must also be able to work under pressure.

Bearing all that in mind, is operator's career path short? lead into technical support or management, even if the latter means leaving the operations department.

And the fact that more and more sites are installing online systems opens up another potential outlet for operators. In fact, working in the TP section should prove interesting and/or upon their experience of the computer room.

Some sites recognise the potential that exists within their operational fraternity and train their staff with career progression in mind.

It's a pity that more don't follow suit.

HINT OF THE WEEK

Card reader can save console work

CARD readers as a means of entering system commands in the IBM OS/VS environment is the subject of a hint from Colin O'Keefe, assistant operations

O'Keefe

officer at British Airways in London.

In general, consoles are the best medium for issuing commands, but O'Keefe points out that this is not always the case.

He writes, "It frequently transpires on OS/VS systems that very lengthy commands have to be entered, sometimes at short notice, when the operator doesn't have time to refer to the operating guide.

According to O'Keefe, such commands should be punched on cards when the operator has a moment to spare. This will save him a lot of console work later on.

He continues, "A very good example for this could be where discs which are normally accessed through two channels, have to be put through one, possibly for emergency maintenance."

He gives the following example:

//V 410,PATH,510,OFFLINT

And goes on, "One would be needed for each drive on the channel to be offlined. To put them back online would require a deck of similarly punched cards with the appropriate parameter changed."

Super Shift places the blame for wavy lines...

STEVE, George and Dave, better known as "Super Shift" at Smedley HP Foods in Leamington Spa, Warwickshire, have come to the defence of the "dear old" ICL 1933 printer.

They comment, "Until December, 1978, we had an ICL 1933 printer running 24 hours a day, and experienced none of the so-called wavy-line print problems, simply because the tension controls had been set up properly by the operator.

"We have also found this to be the case at other sites at which we have been employed. In other words, the wavy-line print problem is most definitely an operator as opposed to a hardware fault."

The idea of a team billing as Super Shift appeals in a sense of humour and reminds me of the time I worked at a site where two operators were employed on each shift.

I christened our shift the Dynamic Duo, because we always seemed to finish our work more quickly than the others. This, I might add, was due to the expertise of my shift leader, who was very much the Batman of the Duo.

Come to think of it, all the names abound among computer operations fraternity, there are names that spring to mind — to include Lightning, Rocket and Rubber Duck. Does your site have one?

IDPM wants 12 top firms to sponsor a full-time secretary-general

A CALL for a dozen top firms in the computer industry to sponsor a full-time secretary general for the Institute of Data Processing Management with £1,000 a head was made at the Institute's annual meeting last week.

London branch member David Scott-Holte said that precedents for this already existed in the US. Spreading the sponsorship would prevent any one sponsor from having a dominant role in the Institute's affairs.

He said a major stumbling block in making the job full-time was job security. He suggested that, following the lead set at British Leyland with Sir Michael Edwardes, the job holder should be given leave of absence from his old job. This would have the advantage of protecting pension rights, etc.

The meeting felt that a full-time secretary-general was a good idea provided the finances were available. The present job holder, Ted Cluff, said that it would be up to the Institute's council to take action by special resolution and to draw up a contract.

A call was made by the chairman of the London branch, John Woodgate, to avoid having too many grades of membership in the Institute. Woodgate, who is also a member of the British Computer Society, said he had voluntarily taken a drop in the Society grade from fellow to associate as he felt there was little to be gained from remaining where he was.

On this theme, Cluff said that plans to appoint senior figures in the data processing industry to the rank of fellow had never been implemented by the Institute Process Council, and had not been discussed since the merger between the Data Processing Management Association and the Institute of Data Processing.

● The Institute's second branch will be inaugurated in Birmingham on Tuesday, October 9, at the Chamber of Commerce in Hagley Road. The meeting is being organised by the Midlands Regional Council which hopes to set up further branches in Coventry, Leicester, Nottingham, Wolverhampton and Worcestershire. The guest speaker in Birmingham will be Alan Watson, marketing manager of Ventek, who will talk on automated offices and the future of data processing.

Library plans electronic journal

AN electronic journal, providing scientists with the means of circulating research papers among themselves without the delays and complications of a printed magazine, is being planned by the British Library. The scheme would be along the lines of the Electronic Information Exchange System in the US (CW, April 26) with which the Library wanted to co-operate until thwarted by difficulties with Post Office common carrier regulations.

Detailed specifications have not yet been fixed, but the journal will probably use one of two software packages available from Infomedia in California, called Planet and Notepad. These both run on PDP-10s, and it is proposed to use the PDP-10 at Hatfield Polytechnic initially. Participants would connect to the machine either by ordinary dial-up terminal or through EPSS, and PSS when it starts.

Authors would type articles on their terminals, to go to a central store for checking by the editor, refereeing, and finally "publication" by making them available to be read by all participants. Facilities for joint authorship would be provided, and a means of conferencing whereby comments could be added one after another to a single file.

The subject covered by the initial journal will be Computer Human Factors, and its editor is to be Professor Brian Shackel of Loughborough University Department of Human Sciences. If this first pilot project is a success, it is hoped to expand it.

Advising on the choice of software is Peter Kirstein, of University College London, who is chairman of the British Library's New Technology Group.

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PEOPLE AND EVENTS

By Judith Morris

CHILDREN from Carter Lodge School in Sheffield were the winners of the GMB Computing Tournament, the annual competition for schools in South Yorkshire and surrounding areas. They received a microcomputer from Martin Chatwin, managing director of GMB, who also presented them with the GMB trophy.

In the tournament final four teams of schoolchildren, ranging in age from 14 to 17 years, competed in a number of games and tests on computer terminals at the GMB Computer Centre at Sheffield.

The headteacher of the school, Mrs J. Nott, said that the microcomputer, a Commodore Pet, would be a useful and important addition to the school's mathematics and computer studies courses.

Runners-up in the competition were Tapton School and Swinton Comprehensive School.

Star directors named

STAR COMPUTERS, a member of the Star Computer group which specialises in computerised accounting and business systems from offices in London, Birmingham and Liverpool, has announced the appointment of two company directors.

They are **Euan McMaster** and **Ivan Barnsley**. McMaster has become software director and will supervise the preparation of computer programs for the Data General computers marketed by Star. He was previously a project team leader with the company.

Barnsley was formerly Midlands area manager for Star.

Barnsley

McMaster

Terry Knight has become divisional marketing director of Systime. His most recent position was that of national sales and marketing manager at McOnomy, a subsidiary of Comet Warehouses.

Alan Weston has become business planning manager of ICL Dataskil, where he will be responsible for the two- and five-year business plans of the company. He formerly held the position of financial controller with the Gould Corp.

Bob Thompson has been promoted to bureau services manager for RTZ Computer services. His main job will be to promote the company's Fascia package. Prior to joining RTZ CS, he was operations manager with the Dickinson Robinson group. Newly appointed as product sales manager is **Howard Kirkham**, who previously worked for IBM. **James Lanvin** has become a customer support consultant at the company's financial planning department. He has previously lectured in business studies in the Middle East.

Mike Evans has become senior systems consultant for communications in the marketing department of Arbat. He will be responsible for Arbat Communications systems worldwide. These include the Intelex and Swift systems. Evans joined Arbat's Netherlands subsidiary in 1975 as a programmer and his last position was as a systems analyst in the production department.

Management game

A ONE-MAN team from Rank Xerox won the tenth annual National Management Game last week by amassing an imaginary profit of £12,977,480 in the day-long final round in London. Neil Tomkin was competing against two other teams from Rank Xerox, which came third and fourth, and one from Chase Manhattan Bank which came second.

The game involves a computer simulation of a marketing exercise and is co-sponsored by ICL.

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DIARY

AUGUST 6-8
Pattern recognition and image processing. IEE Computer Society. Chicago, Illinois. Contact: Pattern recognition, PO Box 639, Silver Spring, MD 20901.

AUGUST 19-22
Third Rocky Mountain Symposium on microcomputers. IEE Computer Society. Pingree Park, Colorado. Contact Michael Tindall, Dept of Computer Science, Colorado State University, Fort Collins, CO 80523.

AUGUST 27-SEPTEMBER 3
Trade and technology in orbit. Orb Foundation. Wembley conference centre, Wembley.

SEPTEMBER 4-7
Compcon Fall '79. IEEE Computer Society. Capital Hilton Hotel, Washington DC. Contact Compcon Fall '79, PO Box 639, Silver Spring, MD 20901.

SEPTEMBER 6
The future of real time languages in process control. BCS Process Control specialist group. Reading University, Reading. 10.00.

SEPTEMBER 11
Performance management. IDPM West London and Oxford branch. Tesdata House, Hatfield Road, Slough. 18.30.

SEPTEMBER 11-12
Computing and communications in the 1980s. Martin Simpson Research Associates. Park Lane Hotel, 36 Central Park South, New York.

SEPTEMBER 12-14
Shape recognition and artificial intelligence. AFTEC and IRIA. Toulouse, France.

SEPTEMBER 13
Optimal control of large scale systems. IEE. Savoy Place, London WC2. 09.45.

SEPTEMBER 17
An afternoon with James Martin. IBM CUA and Butler Cox Associates. The Grosvenor House Hotel, Park Lane, London.

SEPTEMBER 17-19
Fourth international conference on software engineering. IEE Computer Society. Munich, Germany. Contact Prof Fritz Bauer, Institut fur Informatik der Technischen Universitat, D-8 Munchen, 2 Arcisstrasse 21, Postfach 90 94 80 Germany.

SEPTEMBER 21-23
Database technology for large, distributed and intelligent databases. ACM German chapter. Bad Nauheim, Kurhaus, Germany.

SEPTEMBER 24-25
Computer software requirements. TMSA. London. Tel: 01-242 4045.

SEPTEMBER 26-27
Which terminal? Buyers forum. Infotech. The Regent Centre, Carburton Street, London W1. 9.00.

OCTOBER 15-18
INFO 79. Clapp and Pollak. The Coliseum, New York.

NOVEMBER 2-4
Fourteenth European technical conference. British Production and Inventory Control Society. Metropole Hotel, Birmingham.

Security specialist leaves the NCC

WELL-KNOWN security specialist **Ken Wong** has left the National Computing Centre in Manchester to become a member of the security team at BIS Applied Systems.

Wong, who will remain in Manchester in his new position, has achieved recognition in the computer security field as a spokesman and leading practitioner in various aspects of the subject.

He has written four books and many articles on security, fraud contingency planning and other related topics. He has also conducted a large number of security reviews and developed contingency plans for many leading companies. His works include Risk Analysis and Control, a guide for DP managers, which he wrote while at the NCC.

Ray Ellison, head of the security division at the NCC, is also to leave his position, and his plans for the future will be announced shortly.

Wong

Young

Ski with Univac

THE first world water-ski racing championships will be held in Britain this year from September 9-16. Sponsoring the British team is Univac, which will also provide a computerised results service at the championships.

The championships will cover a sea course, an estuary course and an inland water course, and will be held at Whitstable, Kent. The British Water Ski Federation is arranging the event, under the auspices of the World Water Ski Union.

Ken Gooding, previously chief accountant for Nolton Communications, has become commercial director of the company, reporting directly to the managing director, **Brian Dix**. He will be responsible for all commercial and financial administration.

Robert Young has been appointed managing director of Computer Associates (UK), the British subsidiary of the international software house. Before joining CA, he was branch manager of SDI in Rotterdam where he was responsible for sales in Holland, Belgium and Luxembourg.

Colin Croft has joined the board of Computers for Business as sales director, after working for Bell and Howell for four years as sales manager of the company's micro-data systems division. He will now be responsible for increasing sales of the company's CFB 100 small business system.

Exhibition for Logica chief

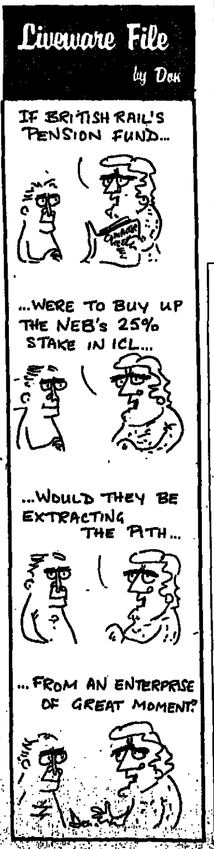
PHILIP HUGHES, manag[ing] director of the services comp[any] Logica, is an accomplished [art]ist and his fourth one-man exhi[bi]tion is now in London. On d[is]play are 64 paintings [and] drawings of South America[n] the Scilly Isles. All are for sale between £110 and £445.

The ink wash and gouache paintings combine bold outlines with soft colours. The artist, Beryl Bainbridge said of the paintings, "They tell the story of how man, dwarfed by the massive ranges of the Andes, built successive civilisations on the rock."

The exhibition is at the Francis Kyle gallery, 8 Maddox Street, London W1 until August 18. It is open between 10am to 5pm weekdays and 11 and 12.30 Saturdays.

Liveware File

by Dax



Soccer results, tables

RESULTS

Division 2:
Datasolve City 6, John Lewis 2;
Airlix 0, Datasolve City 2.

Division 3:
ICL 3, CJB 0.

Division 4:
Allen 3, Wellorax 4.

TABLES

Division 1

	P	W	D	L	F	A	Pts
Altergo	6	4	1	1	31	11	9
Gryphon	6	4	1	0	17	4	9
SIA	6	3	1	2	13	15	7
Atkins	6	1	1	4	20	23	3
Jadpu "A"	4	1	1	2	7	18	3
Datasceno	3	0	0	3	5	17	0

Division 2

	P	W	D	L	F	A	Pts
Datasolve City	7	5	2	0	29	9	12
Comshare	5	3	2	0	17	12	8
Airlix	6	1	2	3	12	15	4
SBS	3	1	0	2	6	13	2
Datasolve WE	3	0	1	2	6	11	1
John Lewis	4	0	1	3	9	19	1

Division 3

	P	W	D	L	F	A
Comp Wkly	7	6	0	1	22	
CJB	7	4	0	3	14	
3Ms	6	3	0	3	17	
UCSL	5	1	0	4	11	
ICL	6	2	0	3	11	
Sherwood	4	1	0	3	5	

Division 4

	P	W	D	L	F	A
Forest	6	5	0	1	41	
Wellorax	6	4	0	1	31	
CDC	4	2	0	2	18	
Jadpu "B"	5	1	1	3	13	
Allen	6	1	1	4	14	
Hoskyns	4	1	0	3	8	

Division 5

	P	W	D	L	F	A
Gill & Duffus	5	4	1	0	18	
Brit Aero	4	3	1	0	11	
Kingstons	6	2	1	2	10	15
NCR	5	2	1	2	13	13
Barrow	4	1	0	4	4	11
Ventek	3	0	0	3	2	8

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MICRO NEWS

By Martin Banks

ITT fills gap in 2020 distribution

THE ITT distributorship relinquished by Data Efficiency subsidiary Microsense when it took on the master distributorship for Apple Computers in the UK (CW, June 28) is likely to be snapped up by the new British Oxygen company, BOC Microcentre Developments.

The two companies are currently negotiating the distributor deal which, in addition to the Microsense territories of the Northern Home Counties and the West of England, is also likely to include most of Scotland except Glasgow.

ITT has been inundated by inquiries from potential distributors of the 2020 microcomputer, which the company assembles under licence from Apple in the US, following the defection of Microsense. It is waiting however, on the outcome of the negotiations with Microcentre Developments, which, it is understood, is keen to put considerable financial muscle into the operation.

The BOC company, which is not connected in any way with BOC Datasolve, is now looking to move from BOC headquarters at Hammersmith to a location more suitable for communications with the three territories. It is currently approaching the dealer network established by Microsense to see if dealers wish to continue selling the 2020 system.

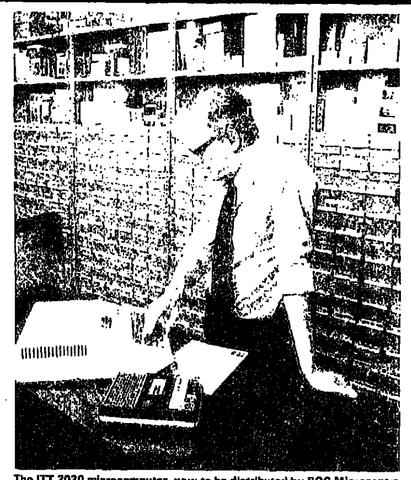
According to Graham Pybus of ITT, there has been little indication so far that the existing 2020 dealers wish to make any change.

This is no doubt partly due to the new pricing structure introduced by ITT in response to the prices being quoted by Microsense for the Apple II Plus it is distributing.

The end-user price of a 16K Apple is £810, to which must be added £20 for a black and white modulator board, plus the purchase of a black and white monitor display. Colour is not available for the system, though a new PAL card is expected by the end of the year.

ITT's new recommended retail price for a 16K 2020, with PAL card and colour capability, is £867, while a 48K system is £995.

A new disc drive is also expected from ITT before the end of the year. This will be an improved mini-floppy unit, with a 250K byte capacity. Sometime next year, an eight inch, dual sided, double density floppy drive offering about 1.5M bytes is also expected.



The ITT 2020 microcomputer, now to be distributed by BOC Microcentre Developments in place of Microsense, and with a new low pricing structure.

Package to control two emulators

A SOFTWARE package that allows a single microcomputer development system to control and co-ordinate the operations of two in-circuit emulators has just been introduced by Intel.

The package is aimed at reducing the cost of developing systems requiring multiple microprocessors, which normally require two separate development systems, each running a single emulator.

Seven devices from Intel's 8-bit microprocessor range can be supported by the package, and the company is planning to introduce further enhancements to support others.

Available as a resident software option for disc-based Intellec development systems, the package runs under the standard Isis-II operating system. It operates by creating a software interface between the user and the emulator units.

Helmsman, ahoy!

A DEVELOPMENT of the Abacus Computers Stunt-box universal interface will no doubt soon be warming the cockles of actor Leslie Phillips' heart, for it is being used as a voice-operated steering controller for small boats.

Now Phillips will be able to use that time-honoured catchphrase from the Navy Lark radio programme — "left hand down a bit" — and get the sort of response he had hoped for.

Aimed at the luxury yacht market, the steering system will have a vocabulary of 32 words, all stored in the Stunt-box's 256 bytes of RAM. Unlike other speech recognition systems, the Abacus equipment will be able to operate with any voice.

A prototype of the £3,500 system is already working, and Abacus is already considering future developments of it. The most likely is the addition of a speech synthesis system, so that the spoken commands are repeated by the system to confirm the instruction given. Another, less likely, development is the addition of navigation software to the steering gear. Abacus is as yet unsure of the market potential for this.

Applications workshop

DETAILS of the University of Liverpool's fourth annual workshop on microprocessor applications have been published by the University's Computer Laboratory.

To be held at the university on September 3 and 4, the programme ranges over such areas as software, signal processing, applications, education, and future trends.

Among the speakers will be Professor A. J. T. Colin of Strathclyde University. He will be talking about the programming language Stab, which is being used to run a patient interrogation and automatic diagnosis system on a microprocessor.

In the applications area, Professor Zissos of Calgary University in Canada will be describing a distributed microcomputer system used in a large electricity sub-station, while E. R. Hnatek, of Monolithic Memories in the US, will discuss future trends in microprocessors.

Further details of the two-day event, which will cost £32 per delegate, can be obtained from the organiser, Dr Malcolm Taylor, University of Liverpool, Brownlow Hill and Crown Street, PO Box 147, Liverpool L69 3BX.

Pet paper plans

EUROPEAN publishing rights, except for Germany and Switzerland, of the magazine Cursor, aimed at users of the Commodore Pet, have been secured by Petsoft.

The American magazine is published monthly as a cassette, and will be available from Petsoft from the August issue on an introductory annual subscription of £29.95.

Each issue contains a minimum of five new programs which can be loaded directly into a Pet microcomputer, and these can include games, tutorials and business routines. The cassette is supported by written notes that include hardware reviews, and hints on using Pet systems. There will be some British input from Petsoft into these notes.

The June, July and August issues will be available immediately, and samples of the magazine can be purchased for £3.50 plus 50p post and packing.

Petsoft is also considering producing a compilation of the "Best of Cursor".

Upgrading the Cosmac

A DISC operating system for the RCA Cosmac microprocessor development system, together with a hardware upgrade package for the system for running the operating system, has been introduced into the UK by the company's distributor, Crellon Electronics.

The operating system incorporates a file management system that contains an extensive range of command files, with new versions of the editor and macro-assembler.

The hardware upgrade package includes a 16K-byte RAM card, a universal asynchronous receiver/transmitter card, and a new read-only memory containing the operating system utilities. Among other features, this ROM allows baud rates of up to 19,200.

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00-7305	2 4MB Disc Drive	£2100
00-7306	4.8MB Disc Drive	£2250
00-7308	PSU for 7305 & 7306 Disc Drives	£300
00-7311	Storage Module Controller	£4150
00-7360	32MB Storage Module Disc Drive	£4500
00-7362	64MB Storage Module Disc Drive	£5600
00-7364	128MB Storage Module Disc Drive	TBA
00-7366	256MB Storage Module	TBA
00-7303	RK05 Adaptor Cable	£45
00-7346	Refurbished 40MB Cartridge Disc Drive CDC9746	£4800
00-7320	Refurbished 20MB Cartridge Disc Drive Memorex 660	£4000
00-7310	Disc Controller for 7320/7346 Disc Drives	£3000
00-7312	High Quality performance specification storage module controller for 7362, 7364 storage module disc drives	£7000
00-7359	Storage Module Disc Sub-System includes 1 x 7312 Controller, 1 x 7364 128MB SMD all cables, connectors and free standing cabinet	£24000
00-7300	Short Disc Drive Cabinet	£400

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00-7506	Line Printer I/F Long Line Driver	£386
00-7510	Hyterm KSR Terminal	£2500
00-7735	30 CPS LA36 20MA	£895
00-7736	30 CPS LA36 EIA Numeric Cluster	£1010
00-7534	LA 36 Conversion Module to convert LA 36 to 1200 baud terminal with many added features (Microprocessor based)	£645
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COMPUTER WEEKLY

INTRODUCTION TO PASCAL

Special features of the language

By Dr Judy Bishop

Two features that make Pascal special are the CASE statement and the set facility. Dr Judy Bishop looks at these in the sixth instalment of her 10-part series, Introduction to Pascal.

Judy Bishop is a lecturer in computer science at Witwatersrand University, Johannesburg, which this year switched from Fortran to Pascal for undergraduate teaching.

Part 6

THIS week we look at two of the features that make Pascal special, the CASE statement and the set facility.

Times on cards

Up to now the exact format of times on the input has been left vague. The nice thing about Pascal's free format input is that the specification need not be too exact. In particular, fixed columns for items are not used; these only lead to untraceable errors. Presumably, the times will be punched up from forms filled in by the employees (Blaze Inc is not a fully automated concern). Get any group of employees to write out the day, hour and minute and you're bound to get variations such as

TUE 8:30 TUES 8:30 TUE 08h30

Not wishing to regiment intelligent beings, we can let these be punched up as they are written and, surprisingly, the program will be not one iota more complicated than if we'd drawn restricting little boxes on the forms.

Multi-Way Selections

Suppose a higher level procedure has positioned us at the start of a time, with the first character of the day in the variable ch. Depending on this character, we want to set up the day component of a time, which was defined in a previous article as equivalent to

```
TYPE time = RECORD
    day: (mon,tues,wed,thurs,fri,sat,sun);
    hour: 0..23;
    min: 0..59;
END;
```

Pascal has just the construct for this and we can say

```
CASE ch OF
  'M': day := mon;
  'W': day := wed;
  'F': day := fri
END;
```

The characters listed on the left are the labels which indicate which one (and only one) of the statements is to be executed. That was the easy bit: what about the ambiguous 'T' and 'S'? Here we have to look at the next character before deciding and we have

```
'T': BEGIN
       read(ch);
       IF ch = 'U' THEN
         day := tues
       ELSE
         day := thurs
     END;
```

The BEGIN and END bracket off the read and the IF-THEN-ELSE as one statement. The same can be done for 'S'.

Dealing with days should end by returning to the higher-level procedure in the same state as it was left, ie at the start of the next item. Thus we include

```
REPEAT
  read(ch)
UNTIL ch = space;
```

which will skip the rest of the day's spelling, neatly overcoming the variations of TUE, TUES and even TUESDAY. The IF, the CASE and the REPEAT will form a "building block" procedure called readday referred to in readtime. Notice the use in Figure 1 of sets for checking subranges. Number is a local variable which will accept perhaps erroneous hours and minutes before they are copied into the time.

```
PROCEDURE readtime (VAR thistime: time);
VAR     number: integer;
BEGIN
  REPEAT
    read(ch)
  UNTIL ch <> space;
  readday(thistime);
  WITH thistime DO
  BEGIN
    read(number);
    IF number IN [0..23] THEN hour := number
      ELSE error(2);
    read(number);
    IF number IN [0..59]THEN min := number
      ELSE error(3);
  END;
END;
```

Figure 1. A procedure to read in times

Sets

The CASE statement does not appear in any other language in this nice form although Algol 68, PL/I, Algol W and even Fortran have some form of multi-way selection. Another feature that is unique to Pascal is the ability to manipulate sets. We can construct sets of simple items just as one would in school arithmetic, for example.

[oranges, apples, bananas].

Square brackets are used to enclose a set and for membership we use IN in place of the Greek ϵ. Thus we can ask

IF fruit IN [oranges, apples bananas]

The usual operations on sets are also available, namely

union	+
intersection	*
difference	—
inclusion	<

One of the nicest uses of sets I have seen is in the Belfast Pascal Compiler written by Jim Welsh, Colen McShane and Colum Quinn in 1976. While generating code, they had to keep track of what registers were currently in use. The compiler had a type definition

TYPE setofregisters = SET OF 0..7

(for ICL 1900s) and statements such as the following made it very readable:

```
thoseusable := thoseavailable *[4,5,6,7] — thoseprohibited;
IF thoseusable <> [] THEN . . . .
```

where [] denotes the empty set.

Nonexistent days

Getting back to the read times problem, we see that sets are very useful for catching errors. If a CASE statement is provided with a value which is not listed, an execution error occurs. Of course, our program is more sophisticated and has its own error routine, so we should preface the case as follows:

```
IF ch IN ['M', 'T', 'W', 'F', 'S'] THEN
  CASE ch OF
    . . .
  END
ELSE error(1);
```

A warning

Sets could revolutionise programming but unfortunately not all implementations implement them sufficiently well. Usually there is a restriction on the largest element that can be put in a set such as 63 or 47 and this sometimes prevents one from having sets of characters. Furthermore, Arthur Sale of Tasmania University has pointed out that some compilers do not like unnamed sets of integers as in [0..59]. I would like to appeal to any implementors reading this to make sure their compilers implement sets as the powerful feature it is meant to be and remove these restrictions.

```
PROCEDURE readday (VAR thistime: time);
BEGIN
  WITH thistime DO
    IF ch IN ['M', 'T', 'W', 'F', 'S'] THEN
      CASE ch OF
        'M': day := mon;
        'T': BEGIN
               read(ch);
               IF ch = 'U' THEN day := tues
               ELSE day := thurs
             END;
        'W':day :=wed
        'F' :day : fri;
        'S' : BEGIN
               read(ch);
               IF ch = 'A' THEN day := sat
               ELSE day := sun
             END
      END ('case')
    ELSE error (1);
  REPEAT
    read(ch)
  UNTIL ch <> space;
END;
```

Figure 2. A procedure to read days of the week

NEXT WEEK: Booleans are great — how to use two-state and multi-state variables

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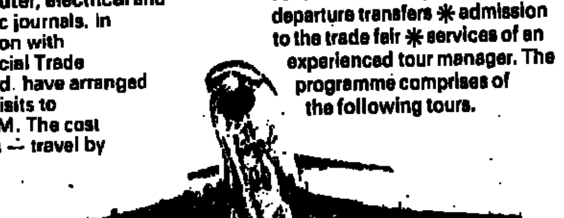

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CW

Pascal compilers released for VAX and other systems

NEW Pascal compilers have been released for the Digital Equipment VAX-11/780 and for Data General Nova and Eclipse systems running under AOS.

First heard of two months ago (CW, May 31), DEC's native mode compiler for the VAX is re-entrant and has several features including separate compilation of modules.

Significantly, it has been launched in the UK with an attractive discount for academic and other institutional users; they will pay £1,690 as opposed to the standard licence fee of £3,375.

The DG AOS compiler comes from Rhintek Inc, of Columbia, Maryland, and is a re-implementation of the RDOS version launched last year. The generated code is said to run twice as fast as the equivalent Fortran IV and the compiler costs $1,250 in the US.

Keele University has implemented an interpreting Pascal system for the Digico Micro 16E, which could be available to other university users. [illegible] also implemented the [illegible] on its GEC 4082 [illegible] release of GEC's Pascal [illegible] for the 4000 series.

Called GR Pascal, the [illegible] compiler was developed by [illegible] Golden River [illegible] Oxfordshire.

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Further particulars and application forms which must be returned by August 27th may be obtained by telephoning Whiteabbey (0231) 65131 Ext. 2243 or by writing to

The Establishment Officer, Ulster Polytechnic, Shore Road, NEWTOWNABBEY, Co. Antrim BT37 0QB.

IMS

U.S.A.

OUTSTANDING OPPORTUNITIES IN THE U.S.A.

Rendeck Corporation is the American sister company to Rendeck Limited in England and Rendeck Nedorland in Holland.

Our international group of companies operates in many areas of the data processing industry including large-scale project development, software and hardware marketing and various specialist divisions.

Rendeck Corporation specialises exclusively in database/datacommunications consultation and project development, particularly IMS, Shadow II & CICS, for our client base that covers the whole country and is controlled from our head offices situated in Boston and San Francisco.

Our priority future plans for the company include the diversification into the development of software and the forming of a comprehensive DB/DC education group.

The expansion we have planned for the immediate and forthcoming period requires the recruitment of experienced IMS personnel with expertise in any area of the DB/DC field to join one of the project teams in various parts of the U.S.A. Our clients encompass the banking, publishing and manufacturing industries and you can be certain that they will use your skills to their fullest extent.

Salaries will be above-average ranging from $20.K-$30.K, exclusive of the comprehensive benefits package offered. Interviews for both immediate and future positions will be held in early August so please contact us immediately.

OFFICES IN AMSTERDAM, BOSTON, LONDON & SAN FRANCISCO.

Rendeck

Rendeck Limited
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Telephone 01-629 5438

NATURAL ENVIRONMENT RESEARCH COUNCIL

NERC CENTRAL COMPUTING GROUP

ASSISTANT SCIENTIFIC OFFICER

The NERC Central Computing Group has a vacancy for an Assistant Scientific Officer to work at the Rutherford Laboratory Chilton, near Didcot Oxon. The post will involve providing general user support for the Univac computer. Specific responsibilities include support of existing major software systems, fault finding and job tracking when problems arise.

Minimum educational qualifications for appointment are 4 GCE O Level passes including English Language and a Scientific/Mathematical subject. Candidates should normally be under 28 years of age on 31st December, 1979. Salaries £2,076 p.a. at age 18 rising to £3,090 p.a. at age 21. £3,186 at age 22 rising to £3,818 p.a. (As at 1 August 1979. These scales will be revised in January, 1980).

Daily travel facilities are available from the Rutherford Laboratory to most of the neighbouring towns and villages. Restaurant and recreational facilities are provided.

Staff of the Council are not Civil Servants but enjoy pay and conditions of service comparable to Civil Servants.

Application forms may be obtained from Ken Young at NERC, Polaris House, North Star Avenue, Swindon (Tel. 0793-40101). Completed application forms should be returned by 10th August, 1979.

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HERTS.

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Efficient systems are vital in the company and our recent move to IBM System 3 model 15D has given us capacity to improve and expand our data processing operation.

The successful candidate will be a self-starter with experience which will enable them to carry through new projects on initial feasibility to final implementation as well as improving and extending existing systems in all commercial areas of the company. With the knowledge and experience gained in most departments, they will in time be ideally equipped for progression to more senior appointments in the company.

A high salary, 4 weeks' holiday, staff discount, generous pension scheme — these are some of the benefits as well as re-location help to a very attractive part of the Home Counties.

Brief personal details to: J. R. Stredwick, Personnel Manager, Everest Double Glazing, Soper Road, Cuffley, Herts. Tel. Hatfield 63535.

REAL-TIME PDP8/11 PROGRAMMER

A small London based systems house has a vacancy for a micro/mini real-time programmer.

Applicants should have:

—at least 2 years' experience in PDP8 and PDP11 assembler.
—experience with communications-orientated systems.
—ability to work unsupervised.
—knowledge of microcomputer systems (preferably MP6800).

Work involves programming and commission of new systems, maintenance of existing systems, and development of new products and may involve short assignments abroad. A knowledge of at least one other European language would be an advantage but is not essential.

The company has a full order book and an on-going development programme. Opportunity exists to work on a wide variety of systems.

Salary is negotiable and would be commensurate with experience and ability.

Apply with C.V. to Box 1048, Computer Weekly.

Fortran Programmer/ Analyst

Our Computing and Statistics Unit is seeking a Programmer/Analyst to assist in providing a specialised support service for about 450 scientists engaged in pharmaceutical research at our Ware Division.

Most of our programs are written in Fortran and are run on a Prime 400 computer, but the Unit is also involved in programming a Wang minicomputer and in the introduction of microprocessors. Projects awaiting development include systems for laboratory management, for data acquisition and analysis, and for handling bibliographic information. In addition, individual scientists require specially tailored programs.

Candidates should be graduates in a relevant scientific discipline, and must be capable of working on their own initiative. Expertise in the use of Fortran is essential, and post-graduate experience of its application in a research environment would be an advantage.

We offer a competitive salary which will reflect the age, experience and qualifications of the successful candidate. Other benefits include non-contributory pension, bonus and profit-sharing scheme, and active sports and social club, and (where appropriate) generous assistance with relocation to this attractive area of Hertfordshire.

Please write, or telephone, for an application form to: Dr. D. J. Humphreys, Personnel Officer, Glaxo Group Research Ltd., Ware, Herts, SG12 0DJ. Tel: Ware 3232.

Glaxo Group Research Ltd.

Systems Manager

Location: Essex

Starting salary: c £9,000 p.a.

A Lloyds Insurance broker wish to recruit a Data Processing professional to be responsible for the Development and Operation of all their broking projects.

An interesting 5-year development plan has just begun which will see the introduction of new systems based on distributed processing, which will cover all the non-financial aspects of a broking group.

This is a key position and requires someone who can combine sound technical knowledge with the ability to communicate at Director level.

If you have a thorough understanding of commercial/financial systems, preferably in Insurance; a knowledge of Real-Time operations and project management experience then you will find this to be a most rewarding opportunity.

Situated in pleasant new offices in Barking, relocation expenses will be paid if appropriate.

Please apply to Peter Carmichael, Wigham Poland Ltd., Wigham House, Wakering Road, Barking. Telephone: 01-594 7222.

Telecommunications Engineer

An experienced electronic/computer engineer (male or female) is required for the commissioning/maintenance of a new ICL 7502 computer terminal network. Initially screens and printers are to be installed by the end of the year, and after a period of training it is proposed to provide a centralised repair service. The data network will be based upon the Board's private PCM radio system and a knowledge of such systems is required. Applicants must have served a recognised training and be technically qualified to at least HNC level in electronic engineering.

Earnings within the range £6,630/£8,705 per annum.

For an application form ring David Gabriel on 061-834 8161, Ext. 252, to be returned to the Secretary, Norweb, Cheetwood Road, Manchester M8 8BA by 17th August 1979.

norweb

ÉDUCATION DEPARTMENT
MONKWEARMOUTH COLLEGE OF FURTHER EDUCATION
Department of Science and Technology

APPOINTMENT OF LECTURER I IN COMPUTING AND DATA PROCESSING

£3192-£6334 p.a. (under review)

Applicants should have appropriate experience and qualifications.

A professional qualification in Computing or Data Processing would be an advantage; industrial experience preferable but not essential.

Commencing salary dependent upon qualifications and experience.

Application forms and further particulars available upon receipt of a stamped, addressed envelope, *from the* Principal, Monkwearmouth College of Further Education, Swan Street, Sunderland, SR5 1EB.

Closing date for applications. August 22, 1979.

L. A. BLOOM
CHIEF EXECUTIVE

Borough of Sunderland

Contract Requirements

OVERSEAS
PDP FORTRAN/ASSEMBLER + REALTIME — BRUSSELS
PDP RSTS ANALYST DUTCH SPEAKING — HOLLAND
IBM COBOL A/P FRENCH SPEAKING — BRUSSELS
IBM DOS PL/1, CICS + TOTAL — HOLLAND

Call Richard or Suzy on 01-491 4706

Knight Software Division
Staff Services Division of BOC Datasolve and Member of Computer Services Association

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JBA

GERMANY

COBOL Programmers (Univac) DM 50,000

Lovely opportunity for COBOL experienced programmers, must be Univac 1100 or 494 series, to join a building society on permanent staff. No knowledge of German is necessary (but would be bonus) and superb benefits are offered, e.g. cheap mortgage, etc. Location is Hanover.

FORTRAN Programmers (Univac) DM 60,000

We are seeking a number of programmers experienced in ASCII FORTRAN, preferably with good knowledge of Univac 1100 series under Exec.8. Work is applications systems connected with a large air freight handling system. Project duration from 12 to 18 months, location Frankfurt and Stuttgart.

INTEL 8080 Engineers DM 60,000

Opportunity for software design engineers to work on very advanced word processing systems in Munich for at least 1 year. Knowledge and experience of ASSEMBLER or PLM is required. We also have requirements for micro processor engineers elsewhere in Europe, so please call us for more information.

Contact: Mike Creamer or Andy Wright

Senior Systems Analysts

Middlesex **Up to £9,000**

Our client is a leading international company in the design and development of engineering products for a wide range of industries. The company has several manufacturing plants throughout the UK but all data processing is centred in Middlesex.

They have an IBM 370/138 running under DOS/VS with CICS on line enquiry and up date applications running. Recently a feasibility study has been completed for a complex on-line order processing system using DL/1 and two senior system analysts are now required to join the development team. It is estimated that implementation of this system, part of a major e.d.p. development plan, will take two years.

Candidates should ideally have an industrial background and have designed and implemented at least one major system. More importantly, the positions will demand a high degree of business sense and ability to maximise the efficiency and ultimate flexibility of the system. The company have a sound reputation for good training and employ modern techniques, including audio/visual aids, for this purpose.

This represents a wonderful opportunity to apply creative ability in an interesting design project which will be a valuable career contribution.

Contact: Mike Creamer

PLEASE NOTE
JBA have moved to new premises and our address is now:
32 SAVILE ROW
LONDON W.1.
Tel: 01-439 9311

For further information on any of the above vacancies, please contact the appropriate consultant.
If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES, International Personnel Consultants,
32 Savile Row, London W.1. Tel: 01-439 9311.

?

Our client, part of an International Pharmaceutical Group, is engaged in the research, development, manufacturing and marketing of a wide range of medical and allied products.

The delivery of an IBM 4341 is fixed for October next year to replace their existing IBM 370/125. Major developments are underway currently in production planning and control systems utilising DL1 and CICS. A committed programme of development will commence early next year with fully integrated DB/DC facilities. Their current EDP team of 37 staff is planned to expand accordingly.

They currently require programmers or analyst programmers with good COBOL programming experience. Machine experience is unimportant. Training will be given in IBM assembler and CICS/DL1.

This is a super company, offering free lunches (comparable to most West End restaurants) and mid-morning snacks, an excellent 6 months sick pay scheme together with long term incapacity benefits. Free BUPA and personal accident schemes with a contributory pension scheme. Salary negotiable up to £6,500 with a review before the end of the year.

There is plenty of parking space and the Company is 5-10 mins walk from Piccadilly and Central Line Stations.

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on 01-603 7335

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IPP

Career Progression in Technical Writing

(Mini-Computer Systems)

Racal-Redac Limited develop and market a wide range of computer systems, based on the DEC PDP11/34, for a variety of applications.

In particular, we have developed an interactive graphics PCB Design System which is in use in electronics companies worldwide. We have also recently launched a Mini Business Control System — the Redac Executive — a system that provides all the computerised business support for a small or medium sized company.

Our customer base is expanding rapidly, and we are therefore seeking to recruit additional Technical Writers to produce user manuals for our current systems, a process which is currently being computerised.

As our product applications are diverse, we *have openings both for Technical Writers who have* worked in a commercial computing environment and for writers with experienced in an electronics environment.

It is envisaged that the remuneration package will be in a range up to £6,000 per annum, although we will be seeking to appoint writers of sufficient calibre to control their own teams in the near future.

Racal-Redac, a member of the Racal Electronics Group, is pleasantly situated in *Tewkesbury, a pleasant, historical town adjacent to* the Cotswolds in the Severn Valley. Relocation assistance will be provided in appropriate cases.

If you are interested in progressing in your career and feel that you have the potential to be responsible for a Technical Writing function in a rapidly expanding company, please write to:
B. Ashcroft, Personnel Officer,
Racal-Redac Limited,
Newtown, Tewkesbury, Glos. GL20 8HE.
Tel: Tewkesbury 294161.

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TYNE & WEAR

Systems Manager
Excellent opportunity to take responsibility for systems development work. Previous experience of manufacturing and engineering applications required, preferably in an IBM installation. *(Ref DR/29)* — c £8000

Senior Analysts
Applications are invited from experienced systems analysts. Excellent career opportunities. Some database and TP experience would prove an advantage. *(Ref DR/30)* — to £7000

Analysts
Candidates should have 2 years systems experience preferably in an IBM environment. This client can offer good career prospects to suitable candidates. *(Ref DR/31)* — to £6000

LEEDS

Systems Analysts
Major Honeywell user wishes to recruit systems analysts with about 3 years experience. Excellent career development opportunities in progressive environment. *(Ref DR/32)* — to £6000

Systems Analysts
Engineering group with interests throughout the UK wishes to recruit additional systems analysts. Experience of general business applications is required and some experience of IBM hardware/software useful. *(Ref DR/33)* — to £6000 + review pending

Senior Programmers
Our client seeks senior programmers with 3 years or more experience. This will have been gained in a medium sized IBM or ICL installation. *(Ref DR/34)* — to £6000

Programmers
Our client is looking for programmers with not less than 2 years COBOL. Honeywell experience an advantage. First-class prospects. *(Ref DR/35)* — to £5500

Junior Programmers
This client wishes to recruit junior programmers with about 2 years COBOL experience. Good prospects *(Ref DR/36)* — to £5000

WEST YORKSHIRE

Systems Analysts
Additional systems analysts are required with 2 to 3 years experience, to work on development projects including accounting, production control and sales. *(Ref DR/37)* — to £6250

Senior Programmer
The successful candidate will be working in a team supporting and enhancing major commercial systems including sales accounting and payroll running on IBM 370. 3 years COBOL required. *(Ref DR/38)* — to £6000

Programmers
A progressive ICL user urgently requires additional programmers. Experience necessary is 1 years COBOL. This client can offer successful candidates excellent career development prospects. *(Ref DR/39)* — c £6000

NORTH YORKSHIRE

Young Programmer
A medium sized ICL installation in pleasant country district seeks programmer with 12 months COBOL on any machine. Client will negotiate your true worth. *(Ref DR/40)* — £Neg + benefits

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Systems Analyst
A well known international company requires a systems analyst with around 3 years commercial systems experience. Previous database experience an advantage. *(Ref DR/41)* — to £6250

BEDFORDSHIRE

Programmer
Experienced COBOL programmer required by progressive 370 installation. 3 years experience required preferably IBM including CICS and DOS/VS. Some supervisory responsibilities. *(Ref DR/42)* — £6000 +

Interested? Send coupon or 'phone Cathy Scott

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PHONE: HOME ______
BUSINESS (will be used discreetly) ______
YRS ANALYSIS ______ YRS PROGRAMMING ______
MACHINES USED ______
LANGUAGES USED ______
SALARY ______
SALARY REQUIRED ______
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The second largest North American Retailer (Canadian Division) requires fully qualified C.I.C.S. programmer/analysts with solid C.I.C.S. and Cobol experience.

Hardware	–Twin 370/135
Software	–DOS/VS, CICS, COBOL, ASSEMBLER
Location	–Northwest suburban Toronto
Salary	–From $18,000.00
Career Advancement	–Project Leader
Assistance	–Relocation expenses–forgivable loan 24 months
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Environment	–new office building

Must be self motivated–minimum supervision–ability to communicate with user departments, prepare documentation, instruct juniors. We have online distribution–payable systems and large P.O.S. project with in-store mini's.
You will be the back-bone of a non-regimented but progressive D.P. section.
If you fit the above description and are willing to work we would like to meet you in London this September.
Qualified applications should forward detailed resume immediately to:

K Mart Canada Limited,
c/o Dept. 1190
Government of Ontario,
Selective Placement Services,
Ontario House, 13 Charles II Street,
London, SW1Y 4QS

London Electricity run a dual IBM 370/158 installation, supporting a large teleprocessing network of 270 terminals utilising OS/VSI and CICS.

Rapid expansion and internal promotion have now created the following vacancy:

SENIOR OPERATOR

Candidates should have a minimum of two years experience in an IBM 370 environment using OS/VSI and should ideally have some knowledge of a multi-cpu installation.
The person appointed can expect to be working as part of a 2-shift system (Monday to Friday), and will be based in SE1, within easy reach of mainline stations, underground and bus routes.
The position is accompanied by excellent promotional prospects, and a salary (currently under review) rising within a scale to £6,182, depending on previous experience. In addition, there are many generous benefits including good holidays, staff canteen, sports and social facilities, sick pay and pension schemes, privilege purchases, etc.

Applications for this challenging position should be submitted in writing to the Computer and Management Services Controller.

LONDON ELECTRICITY BOARD
P.O. Box 74 London SE1 6NL
(This appointment is open to male and female applicants)

The power behind London LEB

Administrative Communications Officer

Applications are invited from candidates wishing to join British Rail as its Administrative Communications Officer. This is a new post, which forms part of BR's newly formed Internal Consultancy Services Department, and is based at London, King's Cross.

The successful candidate will be expected to oversee a number of project teams working at HQ and in the BR Regions on both conventional and more advanced studies in the administrative communications field. In particular, he or she will supervise the development of Video Word Processing applications on BR, possibly networked into BR's internal communication systems.

Candidates should be graduates with relevant development and application experience in the office automation, data processing, and/or telecommunications areas. There are extensive opportunities for career advancement in any of these fields. Commencing salary will be in the range of £7,610 – £8,781 and there are generous free and reduced rate rail travel facilities. There is also a contributory pension scheme and the transfer of existing pension rights can, in most cases, be accepted.

Applications stating age, education, qualifications and experience should be addressed to:

Headquarters Staff & Services Manager,
222 Marylebone Road,
London NW1 6JJ,
(quoting ref: RB.61)

Contract Requirements

UK	
IBM OS ASSEMBLER	— MIDDX
IBM COBOL + ASSEMBLER	— SURREY
IBM OS COBOL + IMS	— KENT
ICL 2900 ANALYST/PROGS	— LONDON
ICL COBOL SFL TECH WRITERS	— WILTS
HONEYWELL COBOL + IDS	— N. LONDON
HEWLETT PACKARD COBOL	— WARWICKS

Call Richard or Suzy on 01-491 4706

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Programmers, Analysts 4K
Project Managers to 8½K

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Project Managers

We seek mature, experienced man managers, capable of controlling teams of between 3 and 10 staff working to agreed target schedules and meeting them. Ability to correctly assess application development time schedules will be essential. Projects are Turnkey ventures necessitating the ability to take on first-time users, handle initial design and development through to full systems and program testing, users training, full documentation development and machine installation. A past record of successful systems implementation is required. We seek key future potential managers able to produce results and both motivate and train subordinate staff during systems development. A good users manner is important. Excellent career opportunities exist for top Project Managers, or Project Leaders able to produce results and meet budget deadlines. Relocation assistance would be supplied where appropriate.

Telephone Ian Gapper: 021-454 7906

Programmers

Our Mini & Micro Turnkey Division have a wide variety of projects currently being developed both on Honeywell Level 6 and Data General Micro Novas. Languages used are Cobol and Basic. Applications vary right across the industrial and commercial sectors. All staff work on a variety of projects and regularly change assignments within the department following completion of projects. Clients include Engineers, Stockist and Distributors, Manufacturers, Newspapers, Government Agencies and Printing Companies. We offer a wide variety of interesting and absorbing projects with good career development opportunities for motivated, company conscious staff. Machine familiarity is unimportant as training will be given to all staff of interest to us, who we feel are capable of making a contribution towards the futuristic projects we are working on.

***Telephone* Recruitment Consultant Carol Proudman: 021-454 7906**

Systems Designers

Analyst with a comprehensive knowledge of industrial or commercial applications systems, and able to design efficient systems on Mini and Micro processors, are urgently required to participate in Turnkey projects at our rapidly developing Datacentre. Experience of designing and systems testing systems will be important, with evidence of having installed at least 3 major systems during the last 3 years. Ability to work in isolation, taking the user requirement to full programming specification will be important. Previous programming experience is essential. Ability to carry out feasibility studies and assess systems and programming development times accurately will also be important. Early promotion opportunities are available for competent conscientious Analyst with good business judgment.

Telephone Ian Gapper: 021-454 7906

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EMS

Analysts

We urgently need a significant number of experienced System Analysts and Systems Designers to work on assignment to our clients site in the Liverpool region. Experience of Accounting or Distributor Systems will be advantageous, but a good industrial background would be acceptable in addition. Ideally, candidates should be aged 25 to 35, with a minimum A level education. We offer excellent career development opportunities within the group, both in the Consulting or Turnkey Systems sectors. Ability to communicate both with users and client programming staff will be important. A wide variety of interests and absorbing projects are available at one of the largest installations in the UK. Equally, the opportunity to travel between major northern sites is available if required as part of the network systems team responsibilities. Excellent salaries are available for these positions, working with one of the UK's most dynamic consultancies.

Telephone John Wood: 0782 623665

Our small ICL Turnkey development section is shortly to embark upon a significant marketing expansion and needs a number of experienced staff to support the venture. Our present in house configuration consists of an ICL 2904 with EDS 60's plus local and remote communications via 7502 terminal processors using Cobol under MTS.

Within this section EMS are currently engaged in a series of interesting Projects developing a variety of applications for Midlands clients. As part of the planned expansion we have commenced design of software development aids and the development modular, interactive applications systems.

Systems Designers/Analysts, capable of Project Management responsibilities, from design through to implementation are urgently needed. In addition, we need enthusiastic and motivated Analyst/Programmers and Programmers down to junior level.

Preference will be given to candidates possessing financial applications experience and any experience with On-line/Real-time systems would be beneficial.

Help us to build the most professional ICL Support Group within the UK.

Consultant Don Walklate
Ring 0782 623665

Honeywell or Data General to £7,500

We have a large range of vacancies throughout the entire UK, both within EMS and throughout client installations for experienced Honeywell and Data General staff. Equally, experience of Cobol or Basic language will be acceptable for candidates wishing to convert to these new technology product ranges and the attractive salary prospects available when relevant experience has been gained. A vast range of choice is available for experienced Data Processing staff, especially for candidates with Honeywell L66 level or Data General Micro Nova backgrounds. A wide variety of project choice is available. Equally, international travel opportunities exist for candidates interested in future Turnkey opportunities. Experienced staff should contact us without delay for application forms and early UK interviews.

Telephone Carol Proudman: 021-454 7906

Freelance

Analysts			
London	—	Accounting Package Systems	— 6-9 months
N. West	—	Commercial and Distribution Systems	— 1-2 years
N. West	—	Univac Financial and Accounting	— 1 year
Programmers			
London	—	Honeywell Level 6	— 6 months
London	—	Honeywell IDS - TDS	— 6 months
London	—	ICL Fortran	— 3-6 months
London	—	Univac Fortran	— 6 months
London	—	IBM - IMS PL/1	— 6-12 months
Midlands and North	—	Univac 1108	— 12 months
Midlands	—	ICL 2903/4 Cobol and RPG	— 6 months

We have a regular Freelance requirement throughout the entire UK. Requirements are received on a weekly basis. We strongly recommend all freelance staff to register on our central computer system to ensure full advantages of the EMS Contract System. If we don't have your details we can't offer you the majority of contracts we never advertise.

EMS

Phone: 021-454 7906 or 0782 623665 or write to Recruitment Division:
E.M.S. Data Centre
Tricorn House, Hagley Road
Fiveways
Edgbaston
Birmingham

SPRECHEN SIE DEUTSCH

Consider a step up in living standards and career progression

Our client in Germany is seeking additional candidates with the necessary skills for a variety of projects.

- ★ IBM, 370/OS/IMS/COBOL PROGRAMMER
- ★ IBM, 370/OS, COMMERCIAL PROGRAMMER
- ★ IBM, CICS/DL/1, SYSTEMS PROGRAMMERS
- ★ MINI/COBOL COMMERCIAL PROGRAMMER
- ★ SIEMENS 7000, BS 2000, PROGRAMMERS
- ★ MINI, COMMUNICATIONS SYSTEMS PROGRAMMER
- ★ INTEL 8080 PROGRAMMERS
- ★ PROCESS CONTROL SOFTWARE PROGRAMMERS
- ★ SOFTWARE/COMPILER EXPERTISE

If you have working knowledge of German plus experience and ability in one of the above mentioned positions, then you will enjoy a rewarding future with international career prospects.

CW 30/2

Central Computing Consultants

SA Lower Grosvenor Place, London SW1W 0EN

01-834 7105

Telex 27950 Ref. 1035

CCC

Senior Analysts & Programmers

North West, c. £7,500

A leading electrical engineering company, part of a major British group, seeks additional Senior Analysts and Programmers as part of its planned Data Processing expansion. These plans include the installation of new equipment and the development of real-time systems. Specific areas for development are Order Processing, Production and Inventory Control and Management Accounting. Duties will also include the improvement of existing computer systems. Applicants will have had experience of developing computer systems in the areas specified and should preferably have managed a small project team.

C.G. Moores, Ref: 24189/CW Senior Analysts, Ref: 24190/CW Senior Programmers

These positions are open to male or female candidates. Please telephone in confidence for a Personal History Form to:

MANCHESTER: 061-236 8981, *Sun Life House, 3 Charlotte Street, M1 4HB.*

Hoggett Bowers

Executive Selection Consultants

BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE and SHEFFIELD.

Computer Services Manager

c. £9,000

Marconi Space and Defence Systems Ltd., Europe's Number One company in the field of torpedo development, has a vacancy for a Computer Services Manager on the Sting Ray project at Stanmore.

The successful applicant will be responsible for controlling the two GEC 4082 digital computers and the Real Time Simulator currently being used to carry out scientific modelling and data analysis studies by our highly skilled teams of software programmers and engineers. The GEC 4082 computers are used in a multi-access mode and currently support a total of 32 on-line terminals and a simultaneous powerful batch stream facility.

The Computer Services Manager will control about 12 operations and maintenance staff who provide computing facilities to the project engineering teams over a two shift period. Besides controlling the existing system he/she will be expected to be involved in activities to improve the efficiency of the facility including the ability to liaise with the computer manufacturers technical staff and to advise in extensions to the hardware.

Experience of organisation and man-management is desirable and it is unlikely that anyone under 28 would have sufficient experience.

This vacancy presents an ideal opportunity for a computer professional to work in our attractive setting in North West London's Green Belt. We offer a competitive salary (dependent on age and experience), a full range of fringe benefits including where necessary, relocation assistance.

Please write, with full details of your career to date and quoting reference ST/297, to Ray Leggett, Marconi Space and Defence Systems Ltd., The Grove, Warren Lane, Stanmore, Middlesex.

Marconi Space & Defence Systems (Stanmore)

A GEC-Marconi Electronics Company

HOUSE OF FRASER

COMPUTER SERVICES

SWINDON, WILTS

SOFTWARE SUPPORT PROGRAMMERS

SALARY £4,500 - £6,500

RELOCATION EXPENSES — STAFF DISCOUNT — PROFIT SHARING — STAFF FACILITIES

House of Fraser have recently relocated their computer centre to Swindon in Wiltshire and upgraded their equipment from ICL System 4/70 to 2960 computers.

House of Fraser systems are currently being converted to VME/B, and the Operations department is in the process of building a Software Support section to service the requirements of VME/B users.

Applications are invited from persons with an interest in this area of computing, and in particular, from persons satisfying at least one of the following criteria:

- — at least two years' commercial programming experience
- — at least one year VME/B macro writing experience
- — at least eighteen months' VME/B base experience
- — at least two years' J1800 support experience

Applications should be addressed to:

The Operations Manager
House of Fraser Computer Services
The Fraser Centre, Faraday Road
Dorcan, SWINDON, Wiltshire SN3 5HS

IRISH RECRUITMENT FEATURE

Advertisers are reminded that the next Computer Weekly area feature will be published on August 9 and will highlight career opportunities in Ireland.

Space reservations should be made as soon as possible to:

Owen Kelly — Manchester — 061-872 4211
Eddie Farrell — London — 01-261 8097

Copy Deadline: PM Friday before

COMPUTER WEEKLY

THE INDUSTRY'S WIDEST READ AND MOST REQUESTED NEWSPAPER

IMS

Specialists in North Herts Salary to £9,000

* Vacancies exist for different levels of experience within a Data Base Admin. Group
* Minimum requirement is 1 year's IMS/DB experience either with a Data Base Admin. or Systems Development Function.
* IMS/DC experience a distinct advantage.
* Additional training provided.
* Contact: Sue Horner, Tesco Stores Ltd., Tesco House, Delamare Road, Cheshunt, Herts., EN8 9SL. Tel: Waltham Cross 32222 or (outside normal hours) Cambridge 871356.

This is your opportunity to be in at the start

Planning Research Corporation is a $250m international Consultancy enterprise with Commercial, Industrial, Governmental and Military interests. The Management Sciences Group is undertaking a major expansion programme to develop the U.K., Europe and Middle Eastern markets. The first projects are underway and we have an immediate requirement for dedicated professionals in the fields of programming, systems analysis and telecommunications.

Your involvement with us at this stage of our market development will provide excellent opportunities for professional growth world-wide.

CENTRAL LONDON — *IBM 370*

Programming Manager £8,500

Analyst/Programmer, 5 years' experience, IBM 370 OS/VS1 or VS2, TSO (with experience in writing/designing CLISTS). FORTRAN required, COBOL desirable. A Scientific or Engineering background and a degree are preferred with at least two years' in lead role over 5 or more programmers. Proven experience in systems analysis and design is required. You will be required to travel to the Middle East to perform the installation of the system.

Team Leaders c£6,500

Programmers/Analysts, 3 or 4 years' experience. IBM 370 with OS and VS1 or VS2 required, plus FORTRAN and Time-sharing Option experience required. COBOL is desirable. A scientific background, plus degree would be useful, but not vital. At least one year in the lead role over two or more programmers neeeded.

Programmers c£5,000

One or two years' programming with FORTRAN required, IBM 370 OS experience desirable.

SOUTH EAST BELGIUM — *Honeywell 6000*

We are converting a large Military command and control IBM 360/50 installation to Honeywell 6000.

Programmers/Analysts c$27,000

plus relocation

We are looking for two years' experience on each of TDS, IDS, and COBOL. One year's systems development and programming experience with Honeywell 6000 are expected. Applicants should be U.K. nationals.

Initial contract term is 12 to 18 months. Salary payment will be in the range of $18 — $20,000 p.a., plus 50% cost of living allowance. A relocation assistance payment of up to $5,000 will be made.

BRUSSELS — *Telecommunications Systems*

Engineers and Technicians

In line with our market development we are recruiting Hardware and Software Engineers and Technicians.

We need familiarity with a broad range of telecommunications hardware and software techniques and equipment. Operational areas are communications controllers, concentrators, MODEMS, multiplexors, P.C.M. and carrier equipment; store and forward, packet switching and polling methods and disciplines. Military communications background is useful.

Salaries will be highly competitive and negotiated on experience.

We are being assisted by Charles Barker-Coulthard who are conducting initial interviews.

Please write with full details, or telephone for an application form, quoting reference 966/6 to Charles Barker-Coulthard Limited, 30 Farringdon Street, London EC4A 4EA. (01-236 0926).

prc

Planning Research Corporation International

Become an International Professional in the 80s

As we enter the 1980s more and more companies are seeking Computer Analysts and Programmers with overseas working experience. However, not everybody wishes to drop everything and rush off to the far end of the world for years on end.

Our client, a medium sized Software House based in London employ people who may work on overseas assignments from time to time in addition to their London and South East Client base.

Candidates who would like to become professionals in the next decade, working with a prestige company on interesting projects e.g. IBM, CICS/Data Base systems or ICL 2950/2960 development systems, should have to have at least 3/4 years' experience of Cobol or similar machines.

Naturally with a company of this calibre conditions of employment are amongst the best for candidates with proven skill in their field.

Benefits include basic salaries to £7500, annual bonus 1/12 of one's salary. BUPA, non-contributing pension scheme, full life assurance and a flexible car scheme.

CW31/1

Central Computing Consultants
8A Lower Grosvenor Place, London SW1W 0EN
01-834 7105
Telex 918582

CCC

Development Staff

Good opportunities for IBM trained staff who have sound educational qualifications and knowledge of Local Government.
The Computer Division of the Treasurer's Department is in a modern Civic Centre with many attractive staff facilities. The IBM 370/138 is disc based, most new applications involve terminals running under CICS/VS.

PROJECT LEADERS from £6834
SENIOR PROGRAMMER/ ANALYSTS from £5058
DATA ENTRY SUPERVISOR from £4053
(Salary award pending)

A number of vacancies exist for junior programmers and operators with some relevant experience wishing to further their careers. There is a strong emphasis on training and opportunity for day release.

RING: A. Ramsay on 01-570 7728 extension 3125
WRITE: F. Reeves, Data Processing Manager
Borough Treasurer's Department
London Borough of Hounslow
Civic Centre, Lampton Road
Hounslow, Middlesex TW3 4DN

Hounslow

TENNENT CALEDONIAN BREWERIES LTD

Systems Manager

The Company is the Scottish operating Company of Bass Ltd., which has an ambitious development programme based on Univac mainframe computers with V-series minis currently being installed in regional locations.

The successful candidate will be responsible to the Company's Financial Director for providing and expanding the systems service to the Company. This will include responsibility for all data preparation and input to the *Group's mainframe machines, the introduction of mini-computers and the* control of a team of Commercial Analysts and the O & M department. There will be close liaison with the Group's central computing function and a contribution will be expected to the overall computer planning process. The post will be based in Glasgow.

Applicants should be in the age range 30-45 and have a degree or accounting qualification as well as membership of a professional computing body. A minimum of six years' practical experience in computerised business systems and O & M must be supported by at least two years' proven management responsibility.

This is a senior management position carrying an attractive salary and fringe benefit package. A Company car will be provided.

Applications in writing should include brief details of education, experience, age and current salary and should be addressed to.

Mr. Kenneth Donald, Personnel Manager

110 BATH STREET GLASGOW G2 2ET

datascene

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SYSTEMS ANALYSTS/ PROJECT LEADERS

OUR CLIENT IS CURRENTLY SEEKING SENIOR EDP PERSONNEL WITH A MINIMUM OF 5 YEARS' IBM 370 EXPERIENCE TO UNDERTAKE ASSIGNMENTS WORKING OUT OF ALKHOBAR. THESE POSITIONS ARE BOTH PERMANENT AND CONTRACT.

EACH PERSON APPOINTED MUST HAVE THE ABILITY TO INSTIGATE, DESIGN AND IMPLEMENT MAJOR DATABASE ORIENTED COMMERCIAL SYSTEMS UNDER THE MINIMUM SUPERVISION. PROVEN EXPERIENCE *IN THE AREA OF* INVENTORY CONTROL AND ACCOUNTING SYSTEMS IS DESIRABLE. PREFERENCE WILL BE GIVEN TO BUSINESS/COMPUTER SCIENCE GRADUATES OR QUALIFIED ACCOUNTANTS WITH EXTENSIVE EDP EXPERIENCE.

BENEFITS INCLUDE.
★ NEGOTIABLE SALARY
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★ AIR FLIGHTS
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Datascene International Ltd.
Sceptre House
169-173 Regent Street
London W1R 7FB
01-439 1856
24 hour answer phone

SYSTEMS ANALYSTS & PROGRAMMERS

Salary up to £8,500

Small but established consultancy based on the South Coast requires Systems Analysts and COBOL Programmers to work on varied and interesting projects in the South-East. Experience with On-line and/or Database Systems with Burroughs B800/B1800 equipment would be desirable but not essential.

Please write giving brief career details to.

G. K. Computer Services Ltd.
Western Lodge, Western Road
Shoreham-on-Sea, West Sussex BN4 5ND

Systems Analyst/Programmer

Rural Worcestershire

IMI Summerfield, a member of the IMI Group, carries out research into and development of solid propellant rocket motors. It is situated in a rural part of Worcestershire about two miles south of Kidderminster.

The position is within the Computer Section of the Rocket Motor Design and Development Department.

The successful candidate will be working on an extensive range of projects covering a wide variety of scientific disciplines or management control systems.

Candidates will ideally be qualified to a minimum of HNC, together with experience of programming and/or systems analysis. The preferred programming languages are Fortran 4 and/or Assembler but this is not essential.

Prospects are first class, there is an attractive starting salary commensurate with age and experience, plus other benefits.

PER
Professional & Executive Recruitment

Contact: Barbara J. Blume, Recruitment Consultant
Telephone 021-236 6971, PER Divisional Office
Fountain Court, Steelhouse Lane
Birmingham B4 6DS

Applications are welcome from both men and women

EXPERIENCED COMPUTER OPERATOR

SOUTH COAST

required for an IBM System 34. The position entails working to strict deadlines, and includes responsibility for supervising 5 data input operators.

Applicants should have a minimum of 18 months' operating experience, preferably on IBM equipment, and have the ability to take sole responsibility for the operation of the system.

Salary will be commensurate with *experience*, and other benefits include pension scheme and subsidised canteen.

Telephone Sally Elkins on Havant (0705) 486221 for application form.
BUTTERICK FASHION MARKETING COMPANY, NEW LANE, HAVANT, HAMPSHIRE.

UNIVAC 1100 FORTRAN PROGRAMMERS

TO £17,000

Four Fortran Programmers are required for a minimum one year contract in West Germany.
You will need at least two years' experience plus a working knowledge of DMS and TIP.
For further information please ring after 6 p.m. Billericay (02774) 3901.

Contract Requirements

PL/1

IMMEDIATE REQUIREMENTS: DOS & OS
LONDON - KENT - PETERBOROUGH - HANTS
Call Richard or Suzy on 01-491 4706

Knight — Staff Services Division of BOC Datasolve and a member of Computer Services Association

FORTRAN

ENGINEERING SCIENTIFIC BACKGROUND

CONTACT US, THE SPECIALISTS IN THESE FIELDS

We urgently require Programmers with experience of Fortran, Assembler, Coral or Basic for Real-time Applications.

Jobs from £3,500 to £8,000 *in all areas*. Phone now for a free list of vacancies.

Capital Appointments, 28-30 Windmill Street, London W1
Telephone: 01-637 5561 (day) — 01-636 [illegible] (eve)

GLOUCESTERSHIRE

ASSEMBLER & FORTRAN?

£6,500-£8,500

You've got at least three years' experience of ASSEMBLER on minis or micros plus some high level programming experience, preferably FORTRAN.

You want a more challenging role at the forefront of technology, more responsibility and a good salary in an attractive part of the country.

You'll work in a small team developing software for a new electronics product based on the INTEL 8085 microprocessor, and you'll progressively assume responsibility for the total software package.

N.B. Naturally you will be relocated by the Company.

For further information please contact MARK IRENS quoting reference CW/0208/1.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR.
TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

D. P. MANAGER

To: £10,000 p.a. + Bonus

and RPG II and/or COBOL PROGRAMMER/ ANALYSTS

To: £8,000 p.a.

West London — Nr. Kingston

Experience on: IBM SYSTEM 3
or
UNIVAC 90
or
ICL 2903/4 ...

Experience of: On-line Systems
Commercial Applications
Manufacturing Applications
Stock Control
Distribution ... qualifies you for an exciting and rewarding future with a small but fast growing privately-owned company.

The top job will be taken by an experienced D.P.M. seeking a *change for more challenge and responsibility or a SENIOR* ANALYST/PROGRAMMER seeking his first step into management. In either case, you should have a wide commercial and D.P. background coupled with a strong desire to succeed in a management role.

First-class Programmer/Analysts with 2 to 3 years' experience of RPG II and/or COBOL programming and some systems design experience are required to join this small but enthusiastic department to develop and implement new on-line systems.

For an immediate interview ring or write JIM FORT quoting reference CW 0208/2.

HUTTON EXECUTIVE SELECTION LTD.
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HUTTON STREET, LONDON EC4Y 8HR.
TELEPHONE: 01-353 7141 (24 HOURS)

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SPECIALIST RECRUITMENT CONSULTANTS

REAL-TIME PROGRAMMERS FOR THE PRINTING INDUSTRY

coltec

TO £7,000 P.A.

NEAR LIVERPOOL STREET STATION

Our Client, Coltec Data Systems Limited, an industry leader in the design and manufacture of advanced computerised typesetting systems for the newspaper and publishing industries, require two additional real-time Programmers to join their small but enthusiastic team of software professionals to develop and support typesetting programs.

The ideal applicant will have had approximately two years' programming experience in an Assembler language on real-time systems combined with some in-depth knowledge of mini computers. Experience of an Algol-type language would be an advantage.

Coltec currently use D.E.C. and Texas Instrument's mini computers as their base hardware and future plans are sure to include the use of new microprocessors.

This is an exceptional opportunity for Programmers to advance their career in a specialist area. The salary and benefits package are exceptional and the company environment is small and friendly.

All interviews will be conducted by our Client. However, in the first instance, please ring or write to JIM FORT for an application form quoting reference CW 0208/3.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR.
TELEPHONE: 01-353 7141 (24 HOURS)

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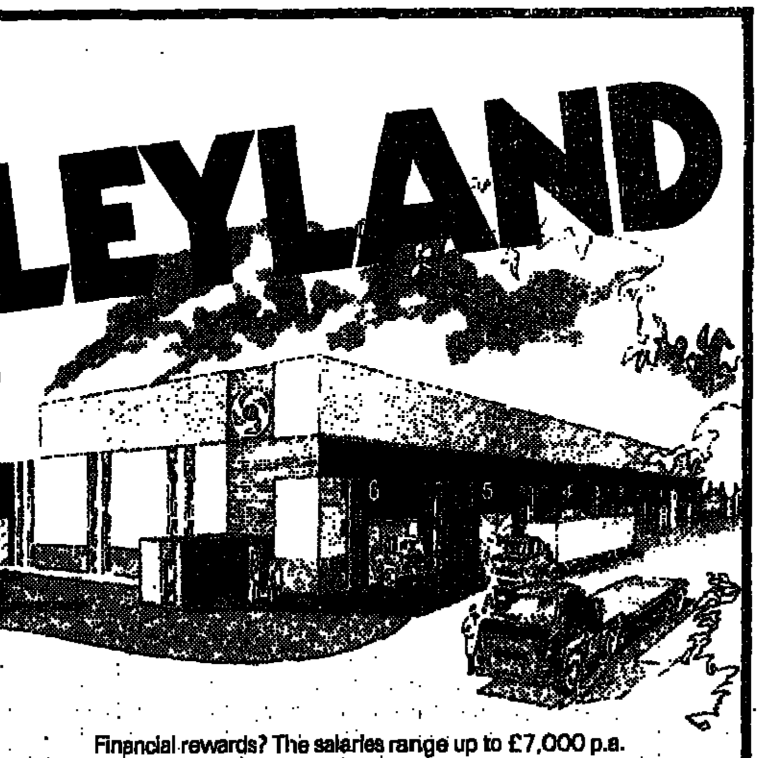
SPECIALIST RECRUITMENT CONSULTANTS

COMPUTERS COME ALIVE AT LEYLAND



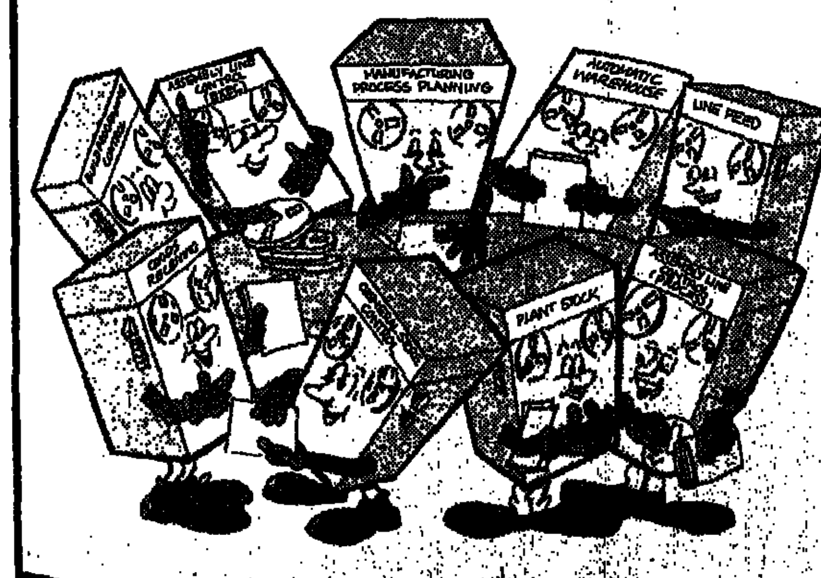
Based on a massive investment Leyland Vehicles are launching a major drive to maintain supremacy in the truck, bus and tractor markets.

Inspired systems development, and the ambitious men and women who originate and implement it, will be an essential part of this unique challenge – their innovative ability can guarantee us the long-term competitiveness we need.

The first phase is an investment of £32 million for the construction of an ultra-modern assembly plant incorporating much of the latest computerised manufacturing technology. The mainframe is an IBM 3031 with on-line systems and telecommunications to other plants and operates under OS/VSI programming in COBOL/PL1 and ASSEMBLER. There are also HP 3000 and HP 1000 mini computers in on-line systems for process control work in systems for goods receiving, warehousing, assembly line control and dynanometer/vehicle testing. Eventually 5 mini computers will be used in the assembly hall and the whole system will soon be going live.

In addition major developments are planned in other commercial areas such as purchasing, personnel, finance and payroll.

Although we're going to be looking for a much wider range of computer personnel in the future, these are the people we need right now:



Project Co-ordinators
Senior Analysts
Analysts
Programmers
Operators

The sheer size of this project – not to mention its emphasis on high-level software – makes it one of the most significant career opportunities in any industry. *In addition to invaluable experience in* data systems, distributive processing, on-line networking and the process control of mechanical equipment, we can also offer you scope for advancement in either technical development or management.

Financial rewards? The salaries range up to £7,000 p.a. and a full range of benefits include a productivity bonus scheme, a preferential car purchase scheme and management car plan for senior vacancies with generous relocation assistance wherever appropriate.

Where are we? We are situated at Leyland in the north west of England in pleasant countryside just off the M6 Motorway. We're convenient for major northern cities, the coast and the Lake District. There is also an excellent standard of readily available housing at moderate prices in the area.

Phone Steve Maslaczyk on Leyland 34419 or if this is not possible write with full details to:

Mr S W Maslaczyk, Staff Planning Adviser
Personnel Department
King Street, Leyland, Lancs.

Leyland Vehicles

MYRIAD

SYSTEMS ANALYST

IMPART YOUR KNOWLEDGE TO OTHERS

SOUTH LONDON **CIRCA £8000**

Our Client, a leading Computer Services Organisation, is seeking additional staff to join their team of D.P. Professionals primarily in a Lecturing capacity. Experienced Analysts with enthusiasm and proven communication skills are required to assist in the training of personnel for both the Public and Private Sectors of Industry, using well established techniques. In addition to lecturing the successful applicants will be required to advise attendees, prepare new course material and generally support our Client's operation.

When not actively involved in training, candidates will be engaged in Consultancy roles and should therefore possess skills in Systems Analysis and preferably have experience of at least one of the following: mini computers, COBOL, BASIC, PL/1, DOS/VS, Database or On-line Systems. A minimum of three years in Data Processing is essential.

These are Senior Positions in a highly successful organisation. The company offer a good pensions scheme, expenses and salary in keeping with a Senior Position.

Ref. SE1/0208

MYRIAD APPOINTMENTS LIMITED Computer Personnel Consultants
Telephone or write to:- 30 Fleet Street London EC4Y 1AA 01-353 0981 (24 hrs)

WEST COUNTRY

Opportunities available in AVON, GLOS, WILTS, DEVON SOMERSET & DORSET

We have been appointed by a number of Computer Users and Software Houses in this area to find particularly good staff for their companies.
Here are some of the vacancies —

CHIEF PROGRAMMER — ICL PLAN/COBOL .... to £7000
SYSTEMS DESIGNERS (2) — COMMERCIAL .... to £8000
SYSTEMS ANALYST — UNIVAC COMMERCIAL .... to £6000
SYSTEMS PROGRAMMER — IBM 4300 .... to £5500
RECRUITMENT CONSULTANT — GENERAL DP .... to £8000
PROGRAMMERS (2) — COBOL/PL1 to £5000
JUNIOR PROGRAMMER — COBOL — 1 YR .... to £4000

If you would like to be sent details of these vacancies or of other opportunities in the West Country please telephone or drop us a line.

WALKER-WESTON EXECUTIVE RECRUITMENT, 1 Smith House, George Street, Nailsworth, Stroud, Glos. GL6 0AG. Telephone: Nailsworth (045383) 4126 (24-hour answering service)

Software Engineers for MPU Process Control Systems

TCS TCS TCS TCS

I'm sure you've heard a lot about the success of the high performance Eurotherm International Group. Well, Turnbull Control Systems is its youngest member company. We are growing fast and rapidly winning a big reputation for advanced control systems with emphasis on computer supervised plant instrumentation — for example, our Matric 6350 single loop microprocessor based process controller which we brought to market recently.

The next phase in the company product development plan creates a new position for a senior engineer with primary strengths in real time software design. The c.v. requirement is experience in control engineering, a formal education with a degree in an appropriate subject and at least five years' relevant industrial background.

I'm looking for self-motivated as well as well-qualified people who will form the life blood of a company where outstanding performance is rewarded with an exceptional salary together with the career prospects that only a rapidly growing organisation can offer. You would be based at our Goring-by-Sea headquarters, in a particularly pleasant area of Sussex and we would pay all your relocation expenses.

If you believe the specification I have outlined fits your circumstances and requirements, then I will be delighted to hear from you.

Dr. N. P. Lutte, Tech. Dir., Turnbull Control Systems Limited
Mulberry Lane, Goring-by-Sea, Worthing, Sussex
Tel. (0903) 503041

Contract Programmers-Analysts

If you are thinking of doing contract work why not start here by registering now for immediate and forthcoming requirements.
For further details contact:
Bridget Kotchie
RENDECK LTD. 100 New Bond St. London W1. Tel: 01-629 5438

Rendeck Recruitment Consultants

Group Systems Controller

c. £7,500

Pandair Freight, one of the world's leading airfreight forwarders has a challenging opening for a Group Systems Controller to report to our Group Systems Manager.

The main functions of the job are to provide specialist knowledge of current systems and technology, possess the ability to identify further areas of potential and the acumen to project lead future developments using external consultancy personnel.

The person appointed will possibly have been a Systems Analyst/Programmer who has had experience of both accounting/financial and real time communications systems and who can demonstrate this experience by involvement at a senior level on at least one major project.

Experience of DEC 11/70 equipment using RSX-11M and BASIC+ 2 would be an advantage as would a knowledge of air-freight procedures although training will be given.

This is an excellent opportunity for someone to develop their business career through exposure to commercial and business activities as Project Leader for future developments, whilst using their technical skills in a supporting role.

The position may well involve a degree of international travel in the long term. Implicit in the above is the necessity for numeracy, literacy and the ability to produce concise reports to senior management.

The person appointed is unlikely to have the experience and confidence required under the age of 28.

In return we offer an attractive salary, an excellent pension scheme, four weeks' annual leave, a friendly, modern working environment, an active sports and social club and benefits associated with a member of the P & O Group.

Applicants are invited to apply with full details to:
C. J. Rapley, Personnel Manager, Pandair Freight Limited, P.O. Box 52, Braywick House, Braywick Road, Maidenhead, Berkshire.

Pandair
P&O International Airfreight

Cobol in Mid-Sussex

We are the largest suppliers of edible fats and oils in the UK. Our modern, purpose-built offices in Burgess Hill (10 miles north of Brighton) house all central Management and Administrative functions.

We need additional programmers to join a highly skilled team working on most commercial systems. The hardware employed consists of large ITEL AS/5 machines (IBM 360/370 equivalent).

Development is via COBOL, PL/1, RAMIS and other techniques including ON-LINE.

A network of HP/3000 MINI-COMPUTERS is currently being installed to complement our already wide variety of applications and to link them with other locations. New developments will primarily use interactive and *distributed* systems techniques.

Requirements are for COBOL Programmers with at least 2-3 years' experience on IBM/OS machines. Training will be given in the other techniques required.

Attractive starting salaries will be offered to the candidates meeting our requirements, together with the benefits associated with a company in the Unilever Group.

Please write or telephone for an application form:

Margaret Holmes, Van der Berghs and Jurgens Limited
Sussex House, Burgess Hill, West Sussex RH15 9AW
Telephone: Burgess Hill (04446) 46300 ext. 2288

Van den Berghs & Jurgens Ltd

HAZELTINE LTD. PERIPHERAL SERVICE ENGINEERS

We are currently seeking engineers at all levels of experience, trainee to senior, to service our customer base both in the field and at central office.

Salary will be commensurate with experience and some positions carry a company car. All engineers wishing to advance their careers into computer communications with a market leader should contact by letter or telephone:

Mr. B. Avis, Service Manager, Hazeltine Ltd. Terminal House, 14 Petersham Road Richmond, Surrey. Tel: 01-948 3111

INTEL 8080 Experience?

— Work on the Coast this Summer

We have several immediate and future vacancies in Sussex for people with sound Intel 8080 experience.

If you have a permanent job or are available now we will be happy to discuss the opportunities awaiting you.

Call Neil, Suzy or Richard on 01-491 4706

Knight
Staff Services, Division of BOC Datasolve, a member of Computer Services Agencies

LCC IS EXPANDING

We need several

SYSTEMS AND PROGRAMMING CONSULTANTS

NOW to join us to undertake projects with our major clients in the Midlands area.

Career prospects with this small friendly company are excellent, and we can offer you—

- Company car (or generous expenses in lieu)
- Salary £6,000-£6,500
- Pension scheme

If you have 5 years' sound systems experience, or slightly less for junior positions, you may be the person (male or female) we are looking for. A degree or H.N.D would give you a head start, but is not essential if you have the right background.

We particularly require people with DEC PDP11, MACRO 11 and RSX experience.

It is unlikely that persons under the age of 25 will have had the necessary experience for these positions

Finally, if you cannot match the above experience, but are dissatisfied with your present position, we have a placement service covering all areas at all levels, entirely free of charge to yourself.

The contact for the vacancies, or placements is.

Mrs. Ackland (phone 021-643 7523)
LAWDEN CONSULTANCY CONTROLS LTD.
Daimler House, 33/34 Paradise Street, Birmingham, B1 2AJ

The University of Sussex

Programmer

(Male/Female)

A programmer is required to work in a small team on the development of data processing systems for the Administration. Applications are invited from experienced programmers (preferably graduates) who are interested in getting results and providing user satisfaction over a wide range of systems. Programs are written in PLAN, COBOL and Filetab and run on an ICL 1904S under George 3. This machine, however, is due for replacement during 1980.

The appointment, which can be either full time or part time, will be a temporary one in the first instance. Starting salary will be not less than £4,700 (to be revised October 1979) for a *full time appointment*, or pro rata part time.

Application forms from the Staff Records and Recruitment Officer, Sussex House, University of Sussex, Falmer, Brighton, BN1 9RH. For further information telephone Brighton 606755, Ext. 408.

COBOL PROGRAMMERS

London & S.E. England

Salaries to £7,000

call

MACROLOGIC
(recruitment consultants)
01-278 5634

CROYDON COLLEGE
Fairfield, Croydon CR9 1DX

COMPUTER STUDIES DEPARTMENT

Applications are invited from suitably qualified persons for the following post duties to commence 1st September 1979

PART-TIME LECTURER IN COMPUTER-STUDIES

Part time day and evening Lecturers are required to teach computer programming, systems analysis and computer application. Teaching or commercial experience in computing essential.

Further details and application forms may be obtained from the Vice-Principal, to whom completed forms should be returned within fourteen days of the appearance of this advertisement.

THE CITY UNIVERSITY

Department of Computer Science

SRC RESEARCH STUDENTSHIP

Applications are invited for an SRC Research Studentship to investigate Braille translation. This project, in collaboration with the Royal National Institute for the Blind, aims to produce a low-cost office machine capable of accepting typewriter input, and forming Braille on a refreshable Braille display.

Candidates would normally be required to have a good Honours Degree in computer science or electronics.

Applications, together with the names of two referees, should be submitted as soon as possible to Dr. G. R. Dowling, Department of Computer Science, The City University, Northampton Square, London, EC1V 0HB, from whom further particulars may be obtained.

contract staff... ...3 and that certain smile

Rates from £265 per week

Programmers	DOS/VS, COBOL + PL/1	W. London
System Designer	DG NOVA, RDOS + CAM	S. Coast
Analyst/Programmer	OS, PL/1 with TSO	W. London
Designer/Programmer	CA Syfa, Sybol	Berkshire
Programmer	OS, COBOL + IMS	Kent
Analyst/Programmer	OS, COBOL	Kent
Programmer	OS, CICS/VS + BAL	Kent
Systems Programmer	OSVS1	Kent
Senior Programmers	PDP11, MACRO11, RSX11M	Kent

Business Analysts — Finance — City — Long Contracts

Telephone 01-638 0036

dilog

DILOG LIMITED Throgmorton House 15 Copthall Avenue London EC2M 5TP

Computer controlled telephone systems

U.K. and Holland

A large order from Saudi Arabia for the manufacture and supply of computer controlled telephone systems has confirmed Philips position as one of the world leaders in this field.

This, plus enhancements and additions to the range of switching systems has created vacancies within the international development team working on these systems. Opportunities exist at the U.K. base in Malmesbury, Wiltshire, where laboratories of Philips Telecommunications and Pye TMC are located and at the Dutch headquarters of Philips Telecommunications in Hilversum.

The development effort extends into the fields of space and time division switching, local and trunk applications, the integration of microprocessors and *network maintenance* and *management centres.*

The following staff are required to work in the area of real time telephony application, basic operating system design and general support tools.

Systems Programmers

At least 2 years programming experience is required. Experience on small computers and/or control systems would be advantageous.

Programmers

Applicants should be either recent graduate level or from a course with a large computer content of programming experience in a high level scientific language.

Software Systems Designers

At least 4 years experience in real time or control systems software design is essential. *Telephony or Telecommunications* experience would be an advantage.

Locations

Malmesbury is situated in the north west of Wiltshire only 5 miles from the M4 and within 1½ hours driving time to London. It is a thriving town of historic interest which also offers all the amenities of a modern community.

Hilversum is located approximately 20 miles east of Amsterdam. The Dutch vacancies can be filled either on a permanent basis or on a three/four year contract basis.

The Company offers benefits in line with those of an International Group, including subsidised canteen, sports and social club, staff purchase of group consumer products and where appropriate, generous relocation expenses.

Please ring Malmesbury 2861 Ext. 266 for further details or write with full details of career progression, quoting reference (H.C.), to the Recruitment Officer, Pye TMC Limited, Swindon Road, Malmesbury, Wilts.

PHILIPS

Computer Manager

£4968-£5268 **Ewell**
(pay award pending)

To manage a small team of Computer Technicians at North East Surrey College of Technology, Reigate Road and supervise the day to day running of a UNIVAC V76, twelve terminal multi access system providing a service to the college and local schools.

You should be a competent programmer who wishes to gain management experience whilst continuing to develop programmer skills. Some knowledge of block structured language would be an advantage. This post, open to men and women, offers responsibility as well as an opportunity to maintain technical proficiency.

Application form from the Chief Administrative Officer at the College. Tel: 01-394 1731

SURREY COUNTY COUNCIL

University of Bristol

Department of Economics

Research Assistant in Computing

The Department houses a PDP 11/34 RSTS/E computer which is used to provide interactive teaching facilities. The Department also has several terminals connected to the University's MULTICS computer for use by staff in their research.

The research assistant will maintain and develop software and assist staff and students in using the systems and writing their own programs. Candidates should preferably have experience of RSTS/E and using Basic and Fortran in the Social Sciences.

Salary, depending on age, qualifications and experience, on research grade IA, at present £4232 to £7145 per annum. The research assistant may be proposed for academic status.

Further particulars may be obtained from The Registrar and Secretary, University of Bristol, Senate House, Bristol BS8 1TH, to whom applications should be sent by [illegible] August, 1979 (please quote reference EB).

UNIVERSITY OF YORK
Department of Computer Science

ELECTRONICS TECHNICIANS GRADE 5

Applications are invited for the above post to assist staff and students in their teaching and research activities. The post principally involves designing, constructing, testing and maintaining electronic equipment in the digital systems laboratory.

Applicants should have some experience of digital electronics, and an appropriate qualification. No knowledge of specific computer circuitry is required as training will be given.

Salary on Grade 5, £3 474-£4 056 p.a. (under review)

Applications in writing, giving the names and addresses of two referees and specifying the post to which application refers, should reach the Deputy Bursar, University of York, Heslington, York YO1 5DD by Wednesday, 15 August 1979.

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We are a major insurance broker with world-wide interests and are embarking on the development of new, large-scale systems based on a distributed network of VDUs and minis linked to a 370/138. Of equal importance is the development of the associated clerical and business systems which the computer systems will support.

These developments will be undertaken by a number of project teams and we need to recruit experienced systems analysts to work at a senior level. In addition we are prepared to consider less experienced analysts, or programmers wishing to move into analysis. These analysts will have the opportunity to progress to more senior levels. The successful applicants will be based in the City of London or Kingston-upon-Thames.

Salaries for the more senior positions will be in the region of £7,500 per annum .We also offer a non-contributory pension fund, employee share scheme, LVs, staff restaurant, a sports and social club and season ticket loan facilities.

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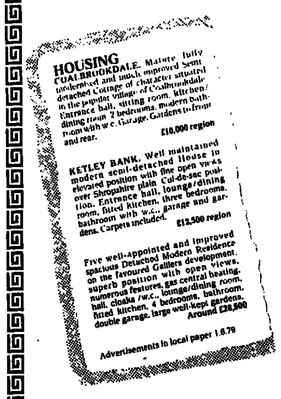

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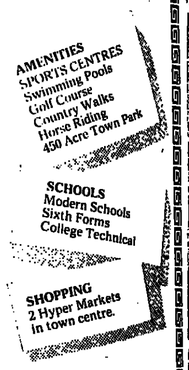

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THORN DATA PROCESSING

CITY OF SHEFFIELD
CITY TREASURY
Computer Services Division

SENIOR PROGRAMMERS AND PROGRAMMERS

The City Council has decided to replace its ICL 1904s (192K) by an ICL 2860 (2Mb) in November 1979 followed by an ICL 2972 (4Mb) in January 1981. During this period both DME and VME/B will be in use.
Applications are invited for the undermentioned posts to assist in the transition to the new equipment. This is an ideal opportunity to take part in the commencement of an exciting conversion and development programme. ICL 2900 experience although advantageous, is not essential as a comprehensive training programme is scheduled.

SENIOR PROGRAMMERS
(Grade SO1/2) — £5,232-£6,060 (including supplement)*
Candidates must be capable of supervising other programmers within a project team and a working knowledge of George 3 will be an advantage

PROGRAMMERS
(Grade TG/5) — £4,245-£5,073 (including supplement)*
Candidates should have at least one year's experience in COBOL programming and must be able to demonstrate the ability to produce soundly-structured working programs to predetermined schedules.
*Pay award pending from 1st July 1979.
Letters of application giving full details of qualifications, background and experience, together with the names of two referees, should be sent to the Chief Personnel Officer, Palatine Chambers, Pinstone Street, Sheffield S1 2HN by 13th August, 1979. Please quote ref. CW.

STRATHCLYDE REGIONAL COUNCIL

GLASGOW. SUB-REGION
ROAD DEPARTMENT

ENGINEER

78 Queen Street/Broomielaw Traffic Control Centre
Salary Scale - A.P. I/V - £3561-£6086* Placing according to qualifications and experience.
Applications are invited from Graduates in Civil Engineering or Computer Science for the above post.
The person appointed will be involved in the maintenance and development of real-time software for Urban Traffic Control System based on dual Marconi Myriad Computers (user code) with associated work using terminals to Honeywell 600/6000. He/she will also be required to liaise with the Engineering staff responsible for the use of the software and to advise and assist them as necessary. Major extensions to the traffic control system are planned and the successful applicant will be involved in the design and development of the new system.
*This salary range is inclusive of supplement.
Application forms may be obtained from the Assistant Director of Manpower Services, 21 Gordon Street, Glasgow G1 3PS, to whom completed forms quoting Ref. G2008, should be returned by 16th August, 1979.
R. M. O. McCulloch
Director of Manpower Services

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Candidates should have a sound operating background using IBM System 3 equipment and ideally have experience of working in a multi-programming environment using CCP utilities.

The company provides computing facilities for its outlets throughout the UK and Europe, and this position offers the opportunity of career advancement within a rapidly expanding organisation.

This is a non-shift position and is accompanied by good conditions of employment and an attractive range of fringe benefits.

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Ring David Abbey for further details on 01-261 8016.

COMPUTER OFFICER PO1C

£6,834 - £7,551 including London Weighting

Brent uses a ½ MByte IBM 370/145 working under DOS/... jointly with the London Borough of Ealing. We are looking ... Computer Officer with an Accountancy or Computer ... logy qualification who will be responsible for liaison be... the Council's user Departments and the Principal Com... Officer at the Computer Centre to ensure the developme... smooth running of Brent's computer operations both ... and non-financial.

The current machine configuration includes 3340 and 33... discs with both local and remote terminals. A Land and Prop... Database is being developed using DL1 and new Financial ... Housing Management Systems are being implemented.

The Computer Officer will be required to advise top mana... ment upon computer matters and to implement and mana... computer applications, including feasibility and cost ben... studies, of both the mainframe machine and Brent's Red... Swedsheck Key to Disc Data Preparation system.

Generous re-location expenses available. 35-hour wee... flexible working hours. Interest-free loans for annual rail ... tickets.

Application forms and job description from the Administration Manager, Room 708, Brent House, High Road, Wembley, Middlesex returnable 13th August, 1979. Telephone 01-903 0371 (24-hour Ansafone Service) Reference Number F/69/JD must be quoted.

London Borough of
BRENT

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Calcomp, specialists in Computer Graphics, are seeking technical instructors to strengthen their European training facility.
Applicants should be qualified to HNC/HND level with Mainframe or Mini Computer Hardware/Software experience, though candidates with experience of Micro-Processing or Communications will also be considered.
The successful applicant will be encouraged to develop in a progressive environment and will be rewarded with an attractive remuneration package.

Male and female applicants please apply in writing to;

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- Take responsibility for the development of several major teleprocessing applications.
- Undertake design and analysis work as necessary for batch Systems.
- Supervise and train programming staff.
- Select and maintain manufacturer's software.

Minimum educational requirements:—

- 'A' level standard in Maths and English Language, although these could be waived in the case of a candidate with an exceptional background of practical experience.

Experience is required in the following areas:—

- A good all-round RPGII and COBOL background.
- At least three years CCP experience at a senior level.

The post calls primarily for a person with extensive "hands on" experience in the field of teleprocessing design and implementation.

Ability to communicate well, both verbally and in writing, is of course essential.

Applications giving full personal education and career details should be sent by AIR MAIL addressed to the Secretary to the Public Service Commission, Post Office Building, Hamilton 5-24, Bermuda, not later than 17th August, 1979.

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2. Will have managed a sales zone or controlled selected accounts.
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Our Client, a leading international consultancy, requires **Senior Telecommunication Specialists** for a large real-time project in Scandinavia. Experience of IBM communication and data base techniques, plus a knowledge of distributed networks is essential. Of prime importance is the ability to undertake complex projects from the design stages through to implementation. Also required are **IMS Systems and Programming Consultants** to complete the team of top class specialists for this assignment. The salary is scaled to reflect the importance placed on the acquisition of these key personnel.

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A prestigious Software and Systems house has immediate vacancies at their London head office and throughout the Home Counties for high-calibre **Programmer/Analysts** to work on IBM front-ends using PDPII's, data networks and systems components, and special communications devices based on micros. Particularly advantageous is experience of writing drivers, protocol handlers etc, in Assembler. Benefits include season ticket loan, LV's and house purchase scheme.

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COMPUTER LABORATORY

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SYSTEMS PROGRAMMER

to work on mainframe computer systems. The Computer Laboratory currently runs a 512K ICL 1906S and is expecting to take delivery of an interactive system in late 1979

Appointments will be made on the following scales

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and initial grade and salary will be determined according to qualifications and relevant experience

A degree in Computer Science or numerate discipline is normally required.

Application forms and further particulars may be obtained from The Registrar The University P.O. Box 147 Liverpool L69 3BX.

The closing date for the receipt of applications is 14th September 1979, and it is expected to hold interviews towards the end of September. Quote Ref RV/720/CW

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MYRIAD

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IBM SYSTEM 3→IBM SYSTEM 38

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The commencing salary will be negotiable and is dependent upon experience. The company offices are located in a very attractive rural setting and the company will offer favourable relocation assistance for this appointment.
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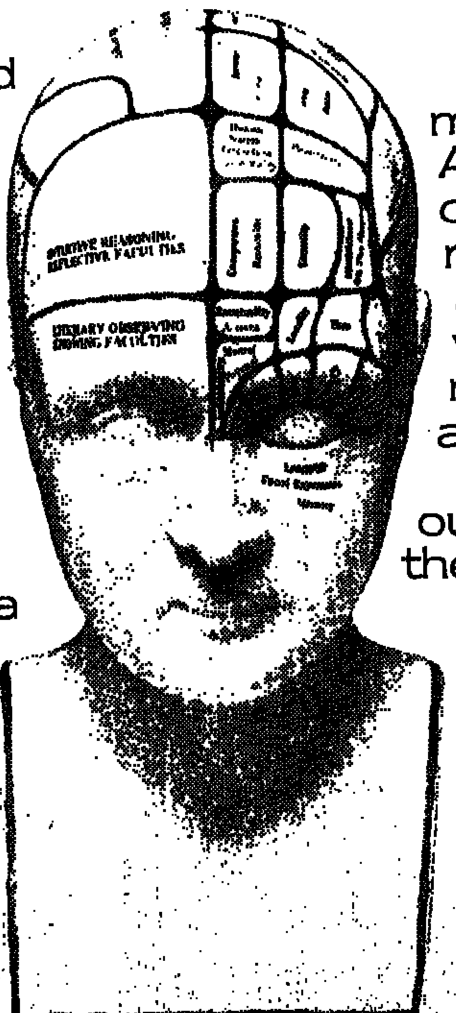

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Because of this, we value our staff highly and reward them accordingly.

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FACULTY OF MATHEMATICAL STUDIES
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in Computer Studies in the Faculty of Mathematical Studies. The person appointed will be required to [illegible] aspects of computer software [illegible] level, and to give elementary programming courses to students [illegible] all disciplines. He or she should have or have research interests in some area of computer software. A Ph.D. in Computer Science is desirable, but not essential if the applicant has relevant experience. The post is available immediately. Salary on the scale £[illegible] to £8902 per annum with U.S.S. superannuation benefits. The starting salary will depend on age and experience but will not exceed £6,106. Further particulars are available from Mrs E. C. P. Sears, Staffing Section, The University, Southampton SO9 5NH, to whom applications (7 copies from United Kingdom applicants) should be sent not later than September 10th, 1979.
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Ref: RW29/3

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Ref: RW29/2

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Ref: RW29/4

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CW31/2

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CW4/8/79

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ANALYST/PROGRAMMERS
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MERSEYSIDE to £6,600
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THE SALES AND MARKETING BIT

Getting yourself fit to sell...

DESPITE the life of luxury hotels, fast cars and fast ladies often imagined by those on the outside of selling looking in, being a successful salesman is a direct function of hard work and positive thinking within an environment which is more susceptible to a coronary by virtue of continual business pressures rather than recurrent Bacchanalian orgies.

Most jobs have either mental or physical demands, but the salesman, certainly in the realms of capital goods and high technology products, is exposed to both, to a significant degree. Thus his total capability needs to be much more than is normally expected of your average head-shed boffin or friendly neighbourhood milkman.

However, mental and physical condition cannot really be separated. One is very much a function of the other. Consequently, mental pressures can quickly lead to psychosomatic physical disabilities and physical ailments can soon cause depression. Conversely, a calm or exhilarated mind can bring about a relaxed or energetic body and an extremely healthy physical state can soon nullify mental stress.

Unfortunately many salesmen, particularly those over 30, appear to be completely unaware of these fairly obvious facts and how much more effective they might be if they paid more attention to their mental and physical condition.

Until the salesman is able to approach the sales negotiation with a positive and enthusiastic mind, uncluttered with the garbage of day-to-day self-inflicted trivia, he is less than completely effective. Until the salesman can get up early each and every day, whatever the weather, and normally feel physically one step ahead of the game, he will never achieve his true potential.

So how is this state of fitness and tranquility achieved? In truth the answer must be "With much dedication and difficulty, and never constantly!"

One's mental and physical metabolisms are interactive. Therefore it is usual that the enhancement of one is the improvement of both. So if the salesman is to make a real effort to improve his overall condition, it is best to start out with either a physical or a mental approach depending on which presents the greater ease and attraction. For one it might be Yoga or transcendental meditation, for another, squash or jogging. It is not unusual for one to lead to the other to bring about a multiplying benefit.

There are many avenues one can explore in terms of a greater mental awareness. My only suggestion is that individuals should make their judgments on the related benefits of contemplating their inner being once they have really tried it, rather than dismissing it as a confidence trick without having had the experience.

From a physical point of view, the opportunities and varieties of methods for improving one's condition are innumerable.

However, a word of warning for those starting out on the hard road to physical fitness. Don't be in a hurry; it is not a competition; do only what you are capable of doing, rather than allow the salesman's instinct for competition to take over.

Don't start out by playing dynamic, stop-go sports like football and hockey. Squash in particular, especially in its present boom of popularity, is a real killer.

Remember, you don't play squash to get fit; you get fit to play squash. Squash-court changing-room coronaries unfortunately are commonplace. Just take it easy and aim only to improve on what you did before, no matter how marginal. Forget the next Olympic Games!

Most people in selling find their life far too demanding and unpredictable to be able to commit themselves to the disciplines of being in a given place at a given time. Consequently, court games, let alone team games, run too much risk of having to let other people down. For many, jogging has become a very attractive and sensible route to physical fitness.

Jogging is really non-competitive running where the individual travels whatever distance at whatever speed is appropriate to his or her capability. Whether or not running is interspersed with walking or stopping is irrelevant.

Apart from the highly beneficial effect on heart and lung, it has the added benefit of being totally independent of time, location, equipment, courts, pitches and other people. It is not unusual for individuals within their first year of jogging to extend their capability from an initial half-mile stagger to regular runs of five miles and over. Many get so hooked on it that they even get into marathon running, an unthinkable prospect when they started out. Whatever the level of involvement, most regular joggers will tell you they never felt physically and mentally more able to cope with the rigours of day-to-day living.

For salesmen that has to be worth at least an extra couple of calls a week!

One important consideration: If you are contemplating any form of sporting activity after a long lay-off and have any doubts about your health, be sure to consult your doctor.

Maybe I should get my company to sponsor a computer industry mini-marathon? There's a thought.

TRADER

Puzzle Answer

5	2	7	11	4
1		6		3

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SENIOR PROGRAMMERS

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If you would like more information on living in Holland you can telephone our Amsterdam Office direct on 010 31-20-264664 reversing the charges, and ask to speak to one of our consultants.

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PERMANENT AND CONTRACT
SAGITTA
U.K. AND AMERICA

FOR FURTHER DETAILS OF THIS WEEKLY FEATURE
Contact: Owen Kelly, 061-872 4211
Basil McGowan 021-356 4838
Mark Pulver 01-261 8174

All you have to do is supply the necessary high levels of expertise and enthusiasm and our client will provide you with everything you need to make your two year contract a really rewarding experience in more senses than one.

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with good experience, especially on IBM equipment and COBOL.

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THE CITY UNIVERSITY
Department of Computer Science

Lectureship in Computer Science

Applications are invited for the above post. Applicants should already have, or be completing, a higher degree associated with some aspect of computer science. (Experience with microprocessors and the organisation of computer systems will be an advantage.)

New microprocessor laboratories for teaching and research have recently been opened. A Honeywell 66/60 is being installed in 1979 as the University mainframe, and the SRC have approved additional interactive computing facilities.

Salary will be on the scale £4232 to £8452 p.a. under review, plus £502 London Allowance. Further details and application forms may be obtained from the Deputy Academic Registrar (tel. 01-253 4399, ext. 338). Please quote ref. CS/252/CW. Closing date 24th August, 1979.

PLYMOUTH CITY COUNCIL

PROGRAMMER

GRADE: AP.3/4 £3,732-£4,632
(National pay award pending).

Applications are invited from suitably qualified men and women for the above post in the City Treasury.

Applicants should have 18 months' experience of programming, preferably in PL/I. Knowledge of Assembler or RPG would be an advantage. Preference will be given to applicants who have passed, or are studying for, the examinations of the B.C.S., or who have other suitable qualifications.

The installation comprises an IBM 370/138 operating under DOS/VS, with local and remote terminals using CICS/VS, and on-line programming using SPMOL.

Service is provided for the City Council and four other District Councils.

Job descriptions and application forms, returnable by Friday, August 17th, 1979, are available from City Treasurer, Guildhall, Plymouth PL1 2AA.

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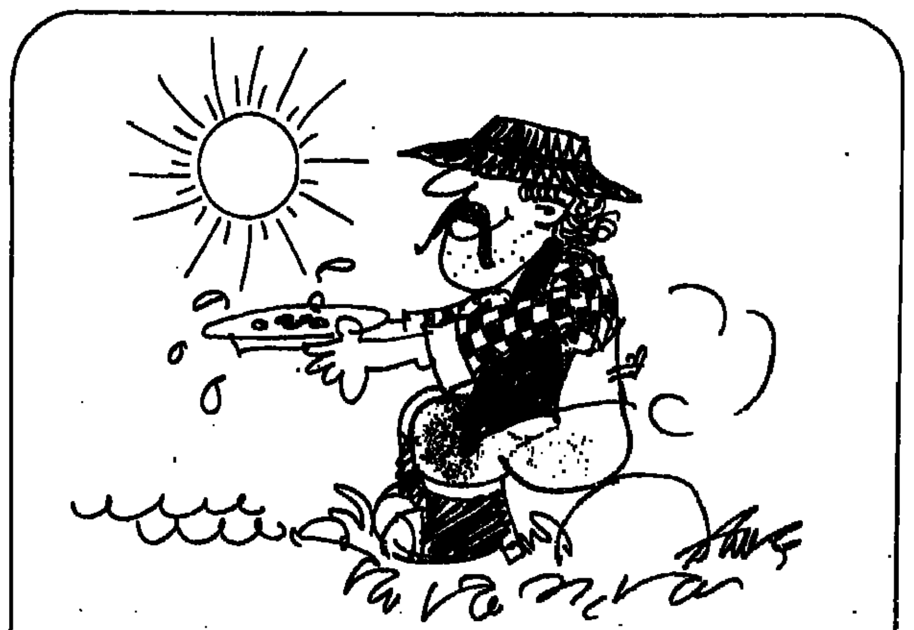

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